

# OMPS LP observations of Kelut and Calbuco volcanic eruptions

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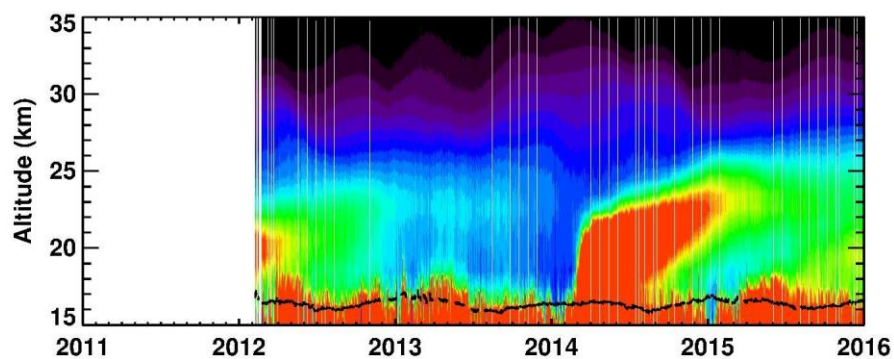
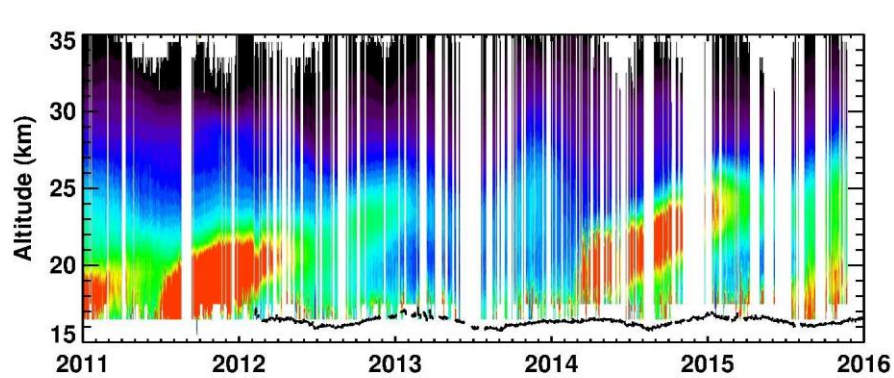
# Outline

- Observation of Kelut and Calbuco
  - OMPS and OSIRIS daily zonal means
  - Weekly maps
  - Monthly zonal means
    - Superimposed MERRA2 residual winds, potential temperature
    - Screened for clouds
- Tropospheric aerosol
  - Aerosol hole in NH midlatitude

# OMPS & OSIRIS at Lat 0-10

- Elevated aerosol almost two years after eruption
- Aerosol lofting from 20km to ~26km in one year

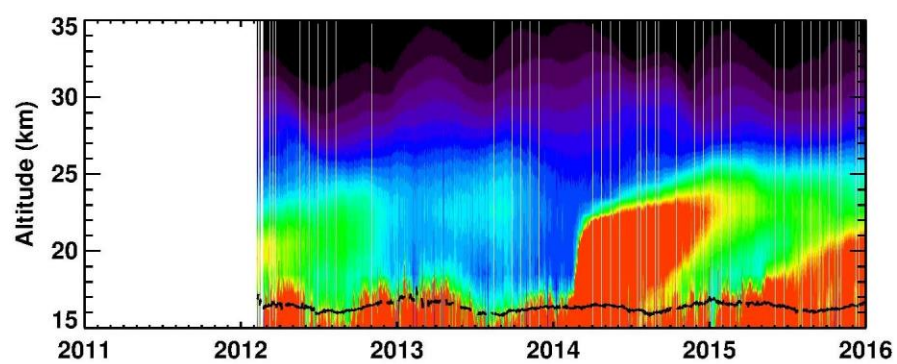
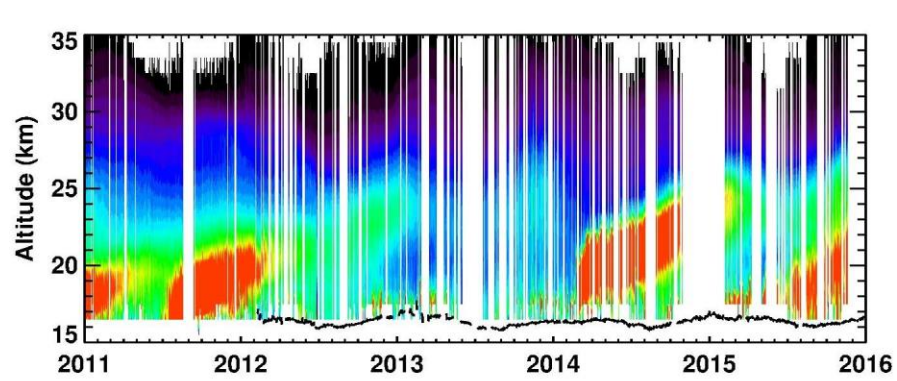
0 < Lat < 10



# OMPS & OSIRIS at Lat 10S - 0

- Aerosol from Calbuco reaching the tropics

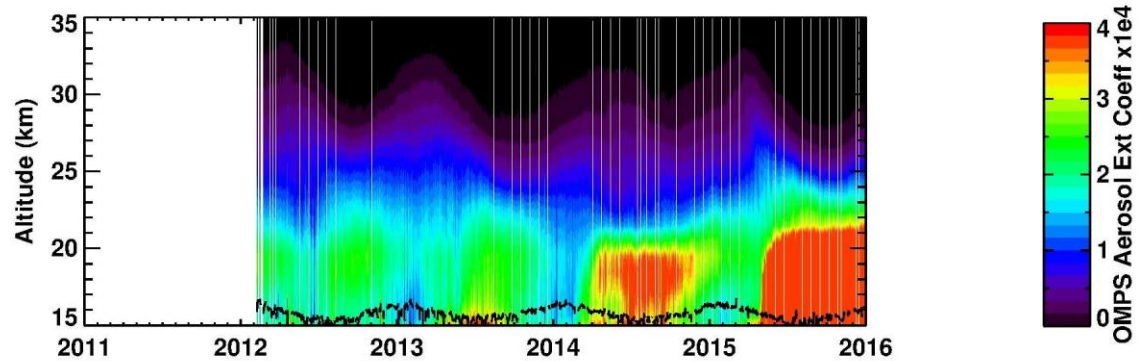
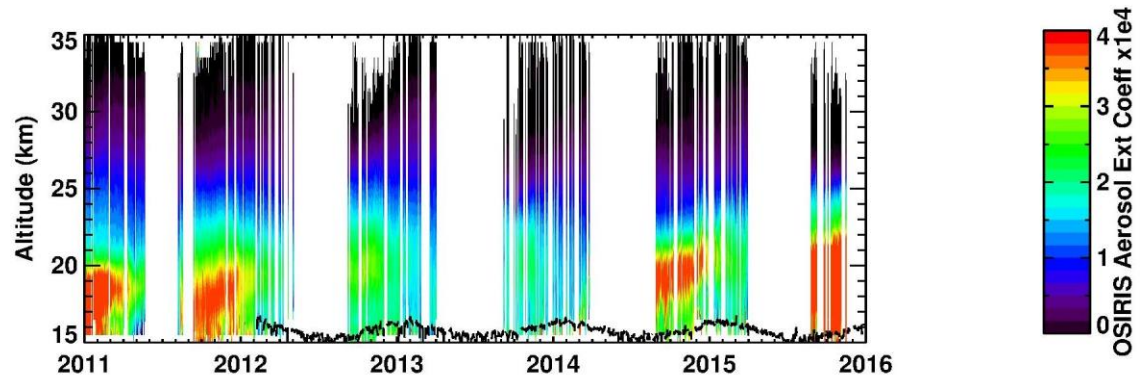
-10 < Lat < 0





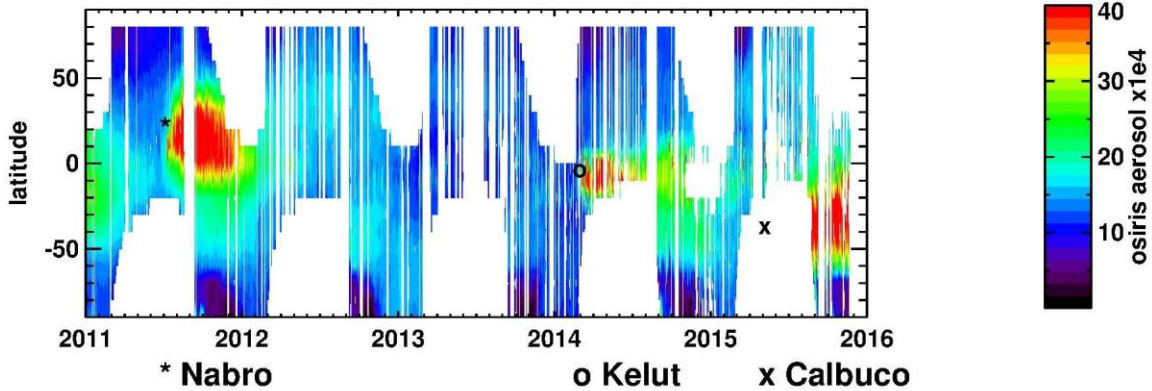
# OMPS & OSIRIS at Lat 30S – 20S

-30 < Lat > -20

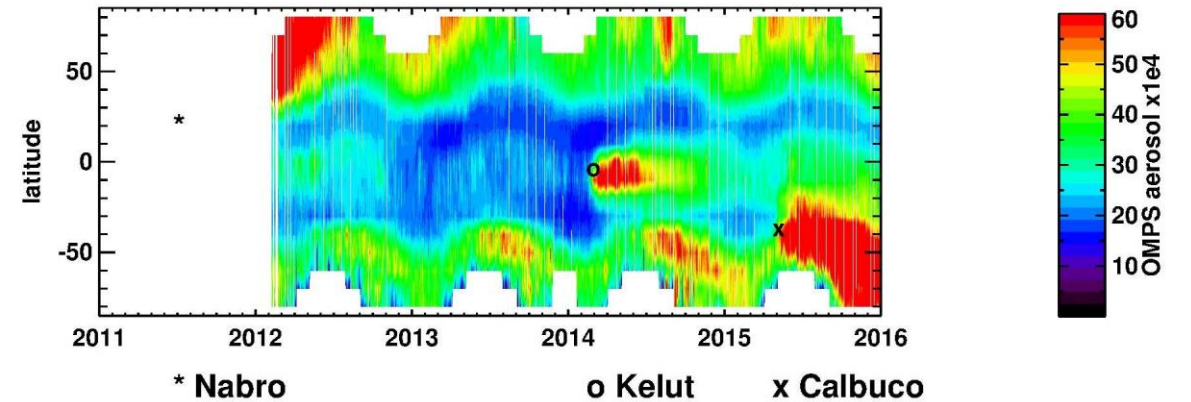
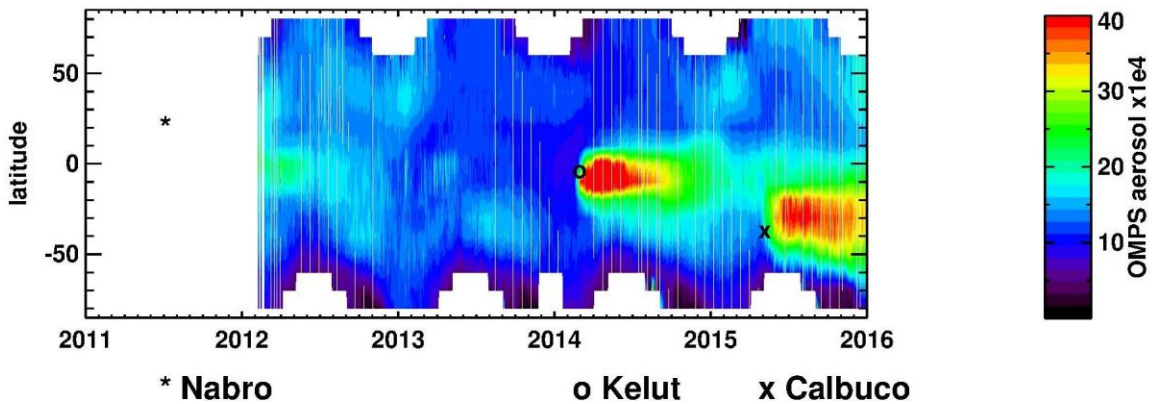
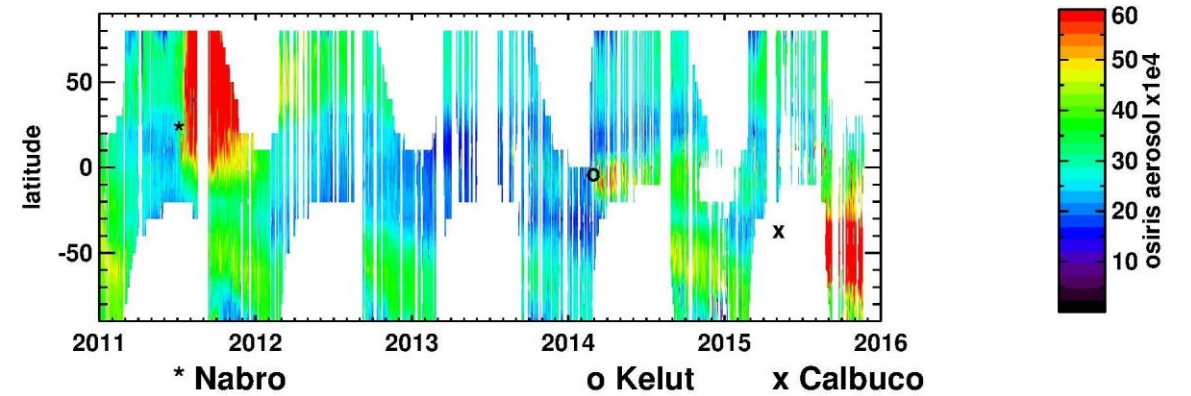


# Stratospheric aerosol column

Stratospheric aerosol column 17.5 km to 23.5 km



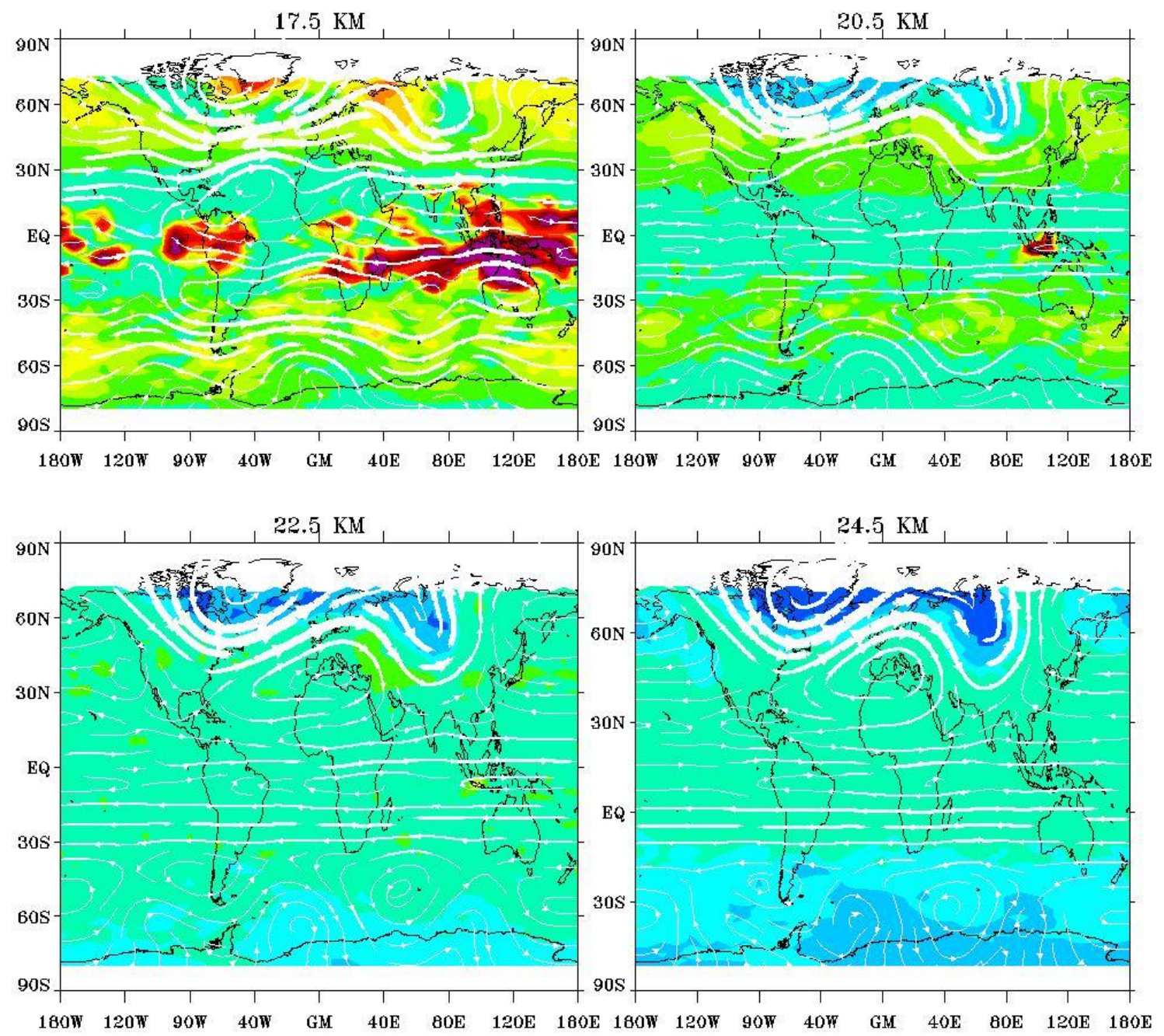
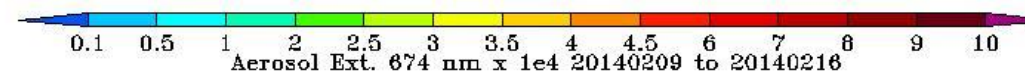
Stratospheric aerosol total column



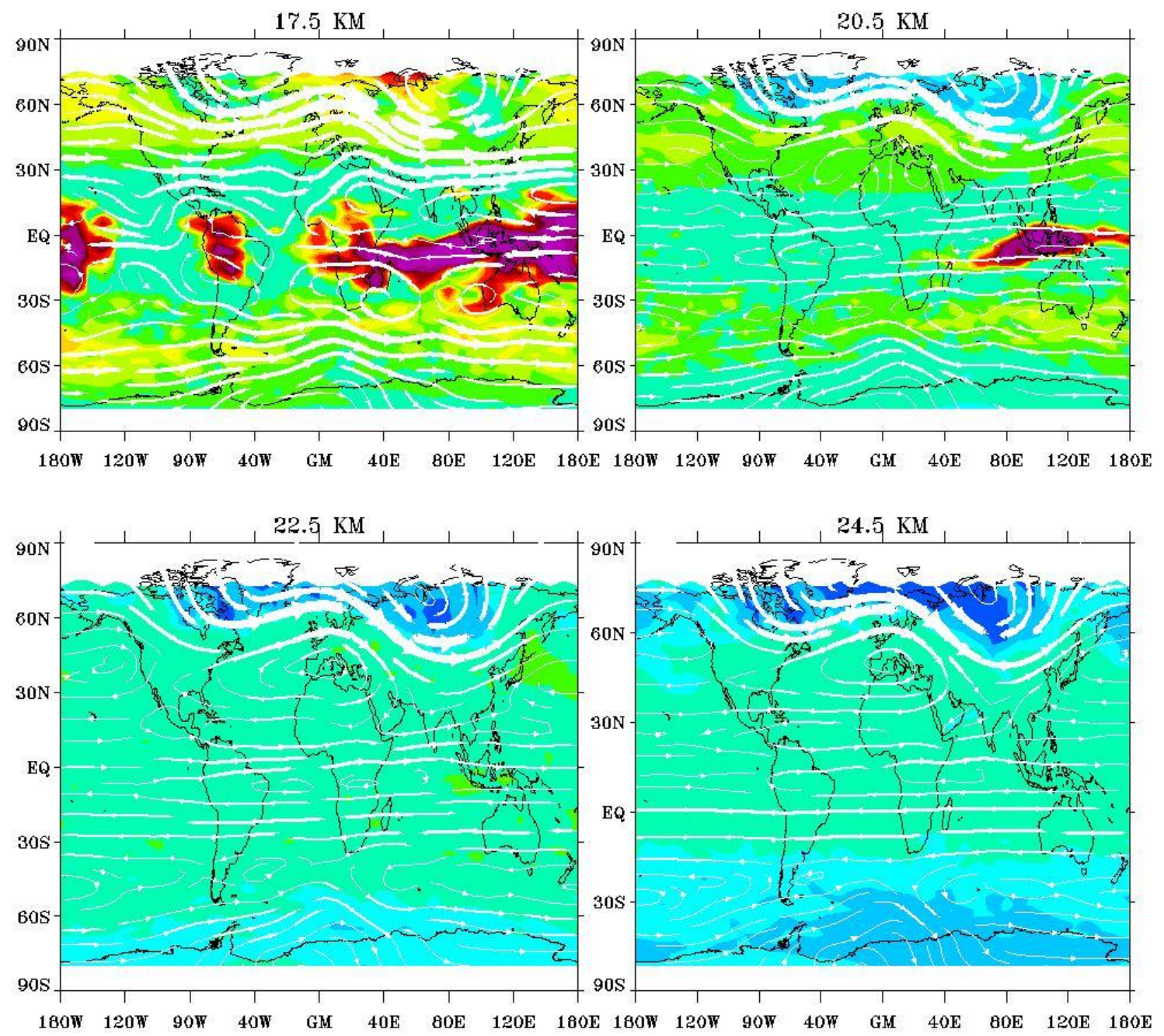
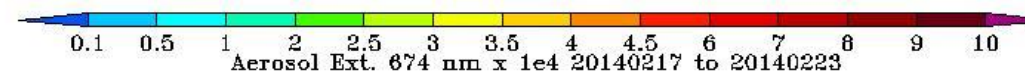
# Tracking Kelut

- Weekly maps
- No cloud screening
- MIRRA 2 winds
- Maps at 17.5, 20.5, 22.5 and 24.5 km

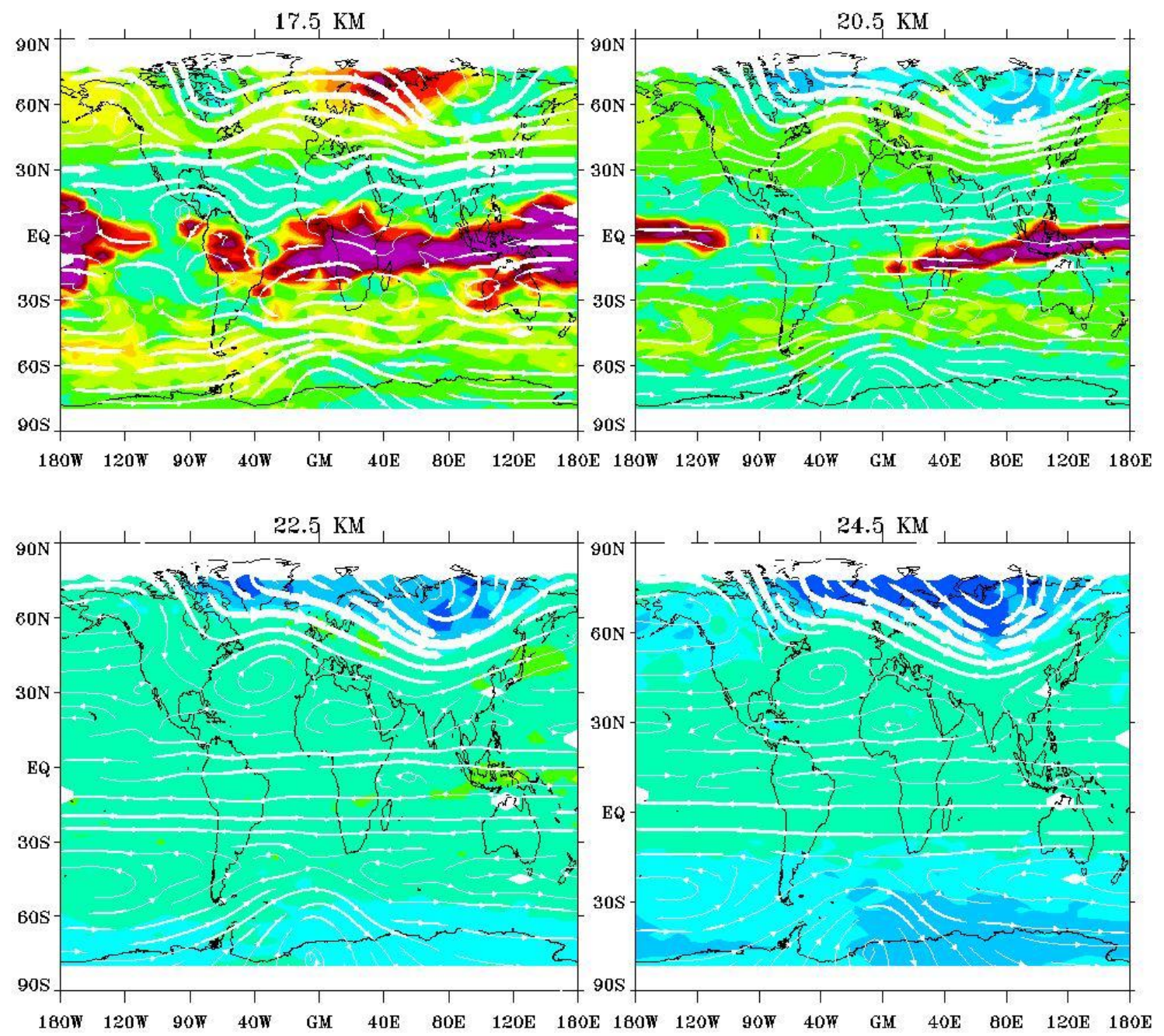
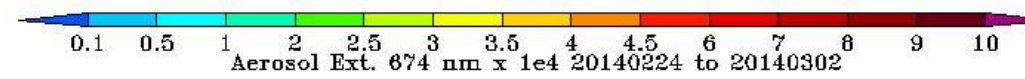




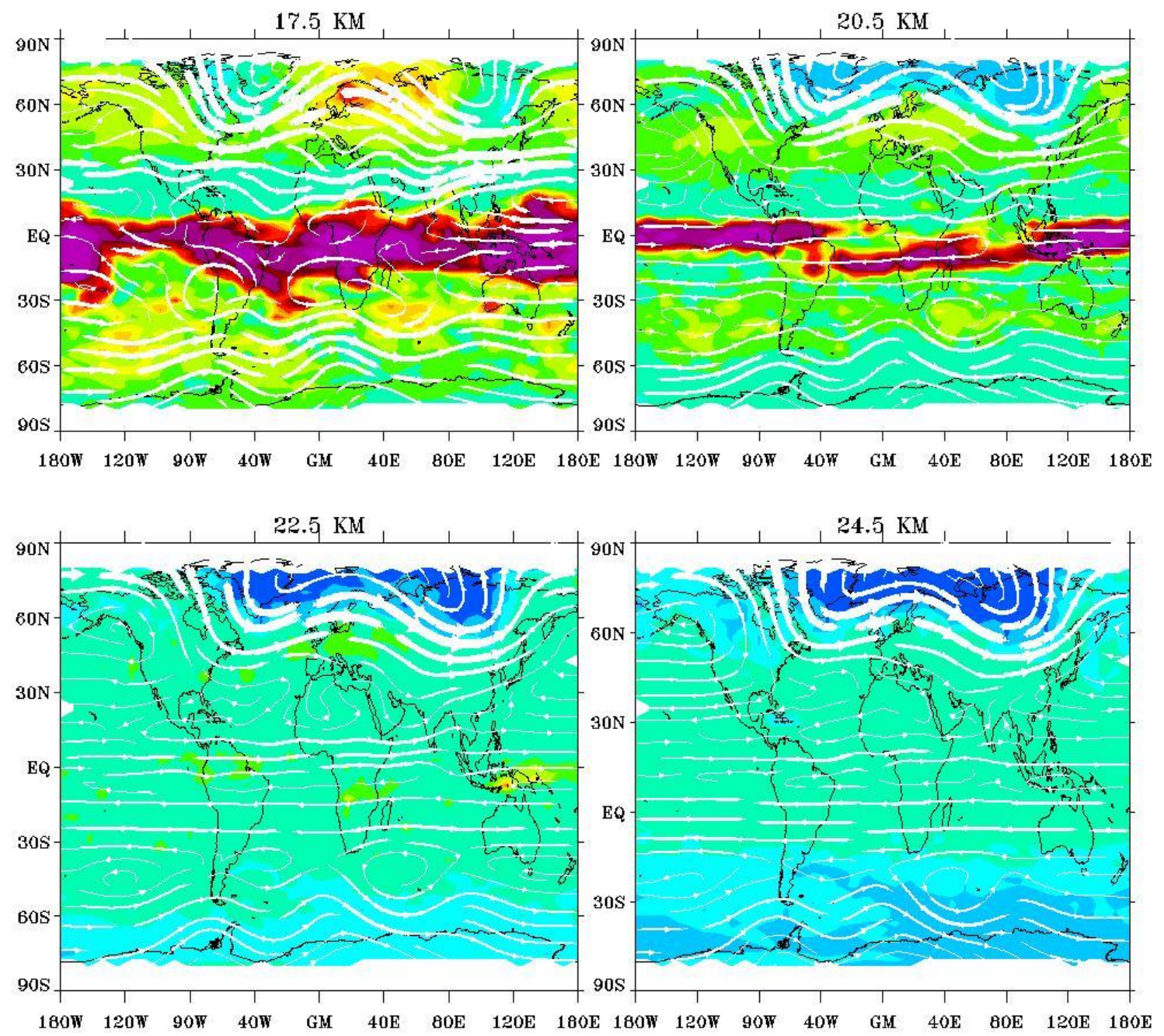
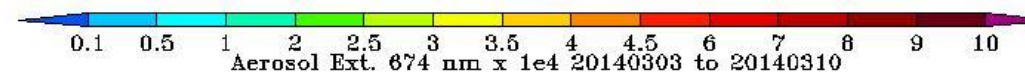




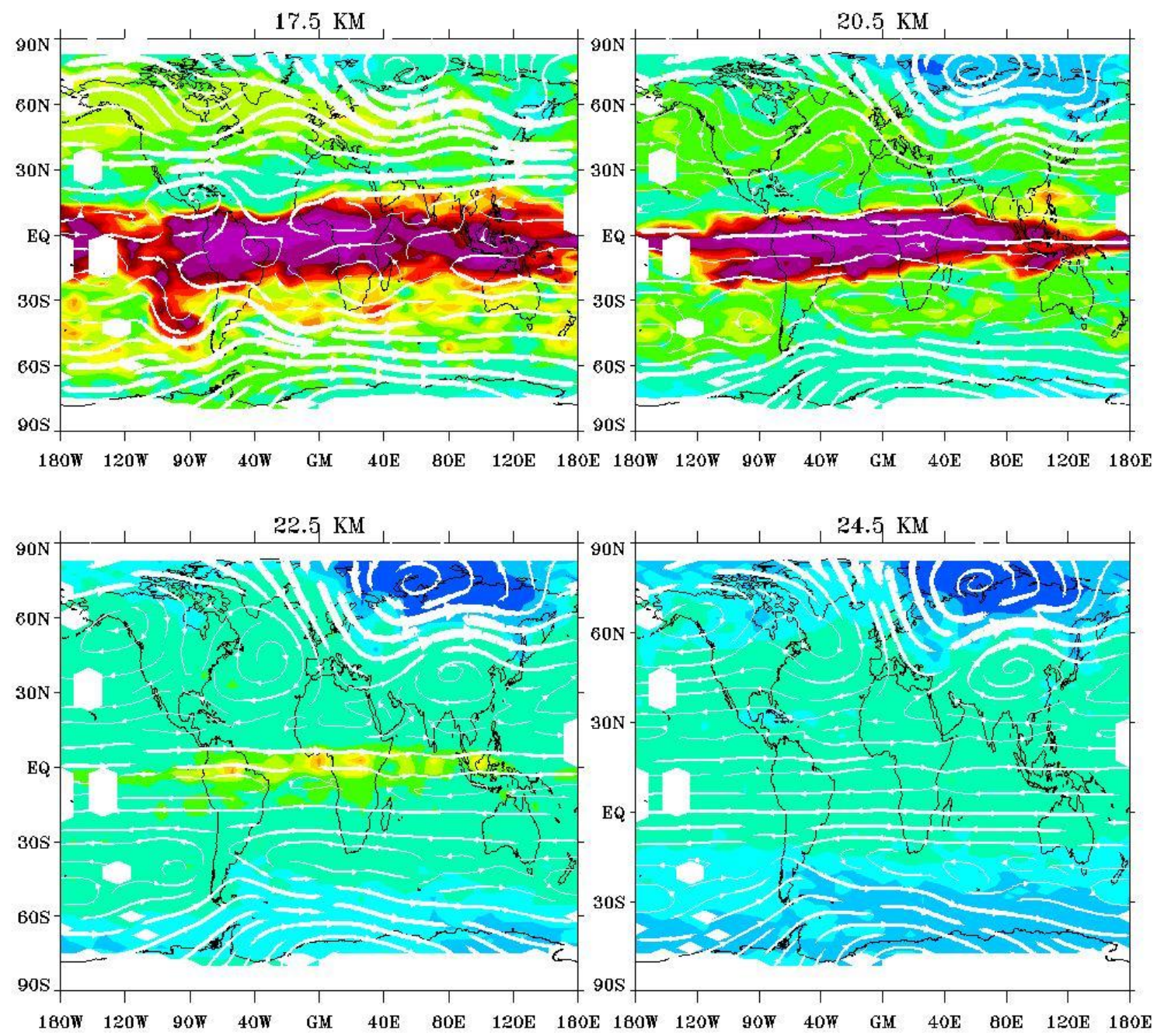
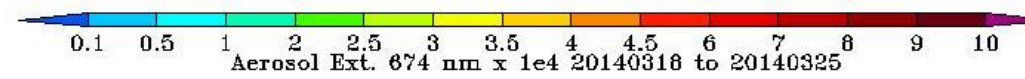




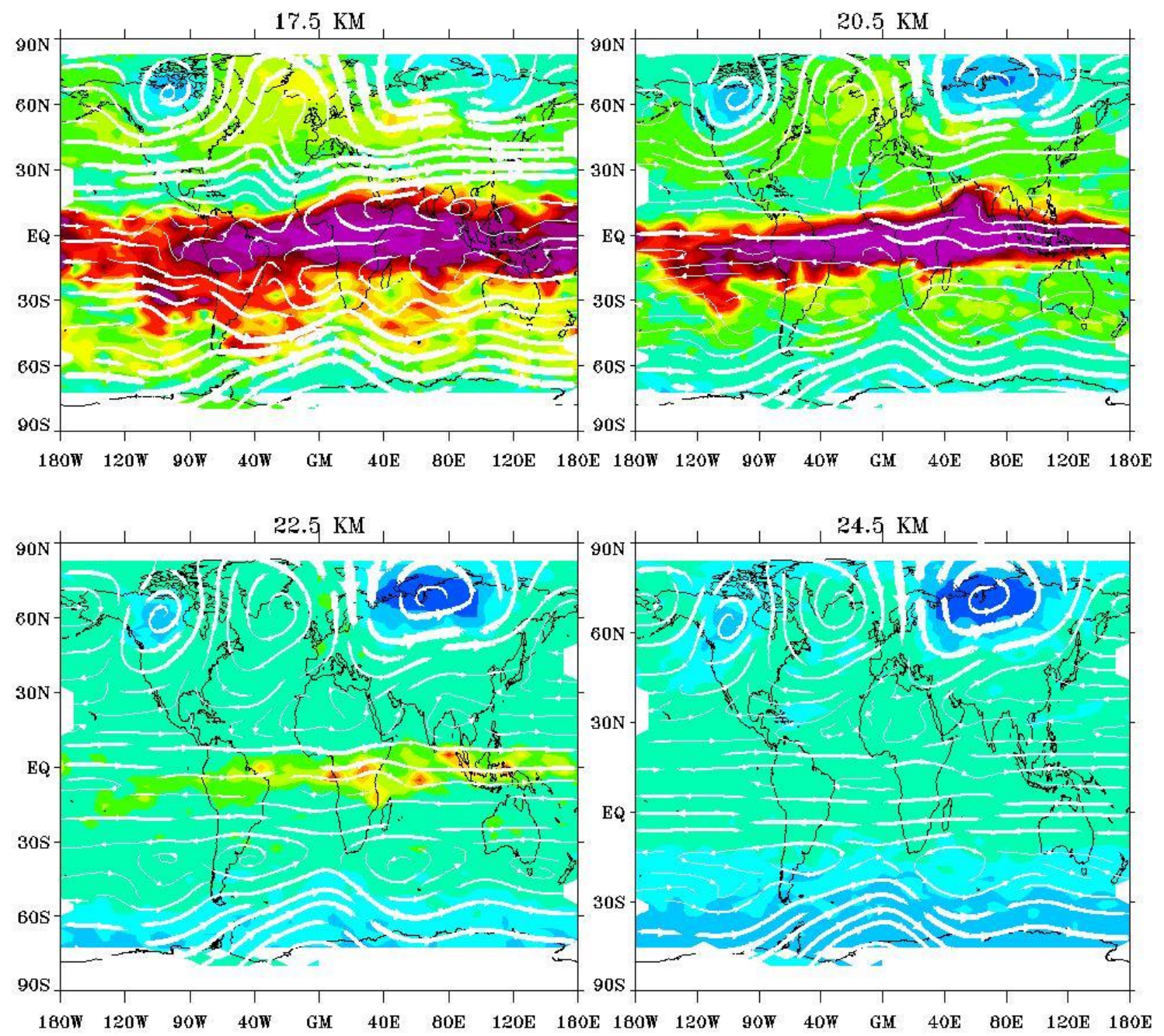
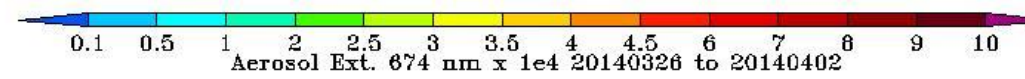




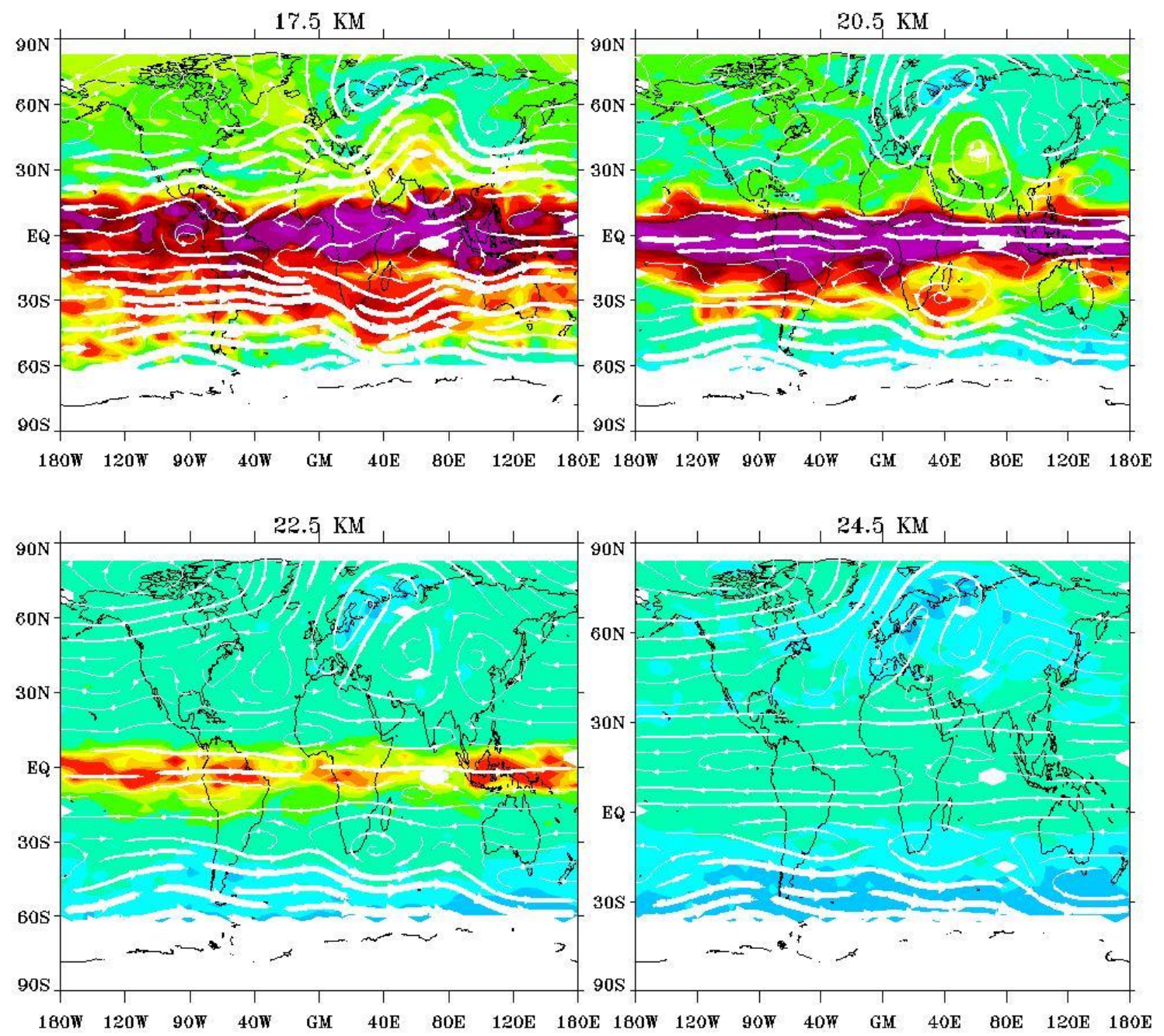
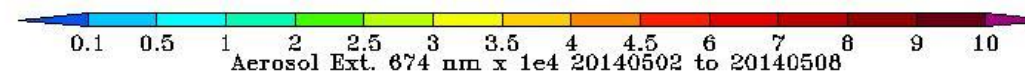




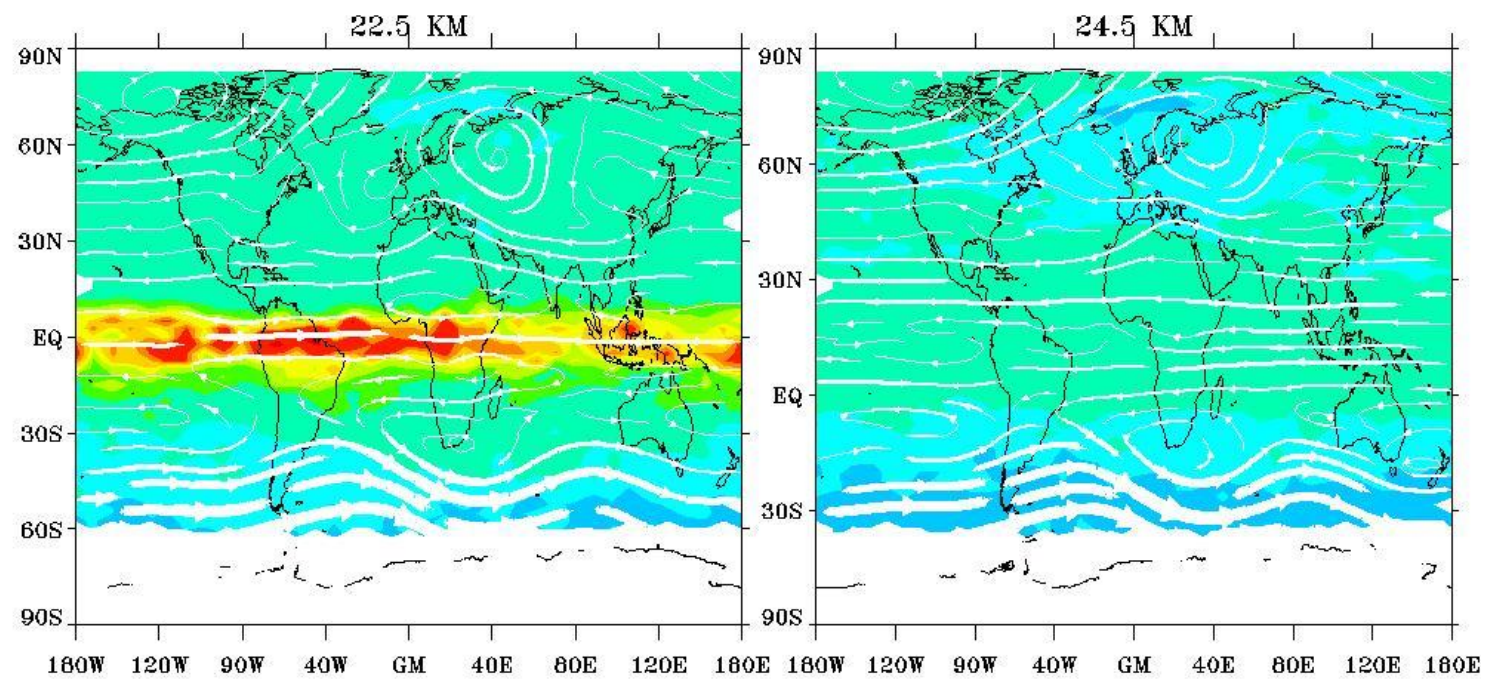
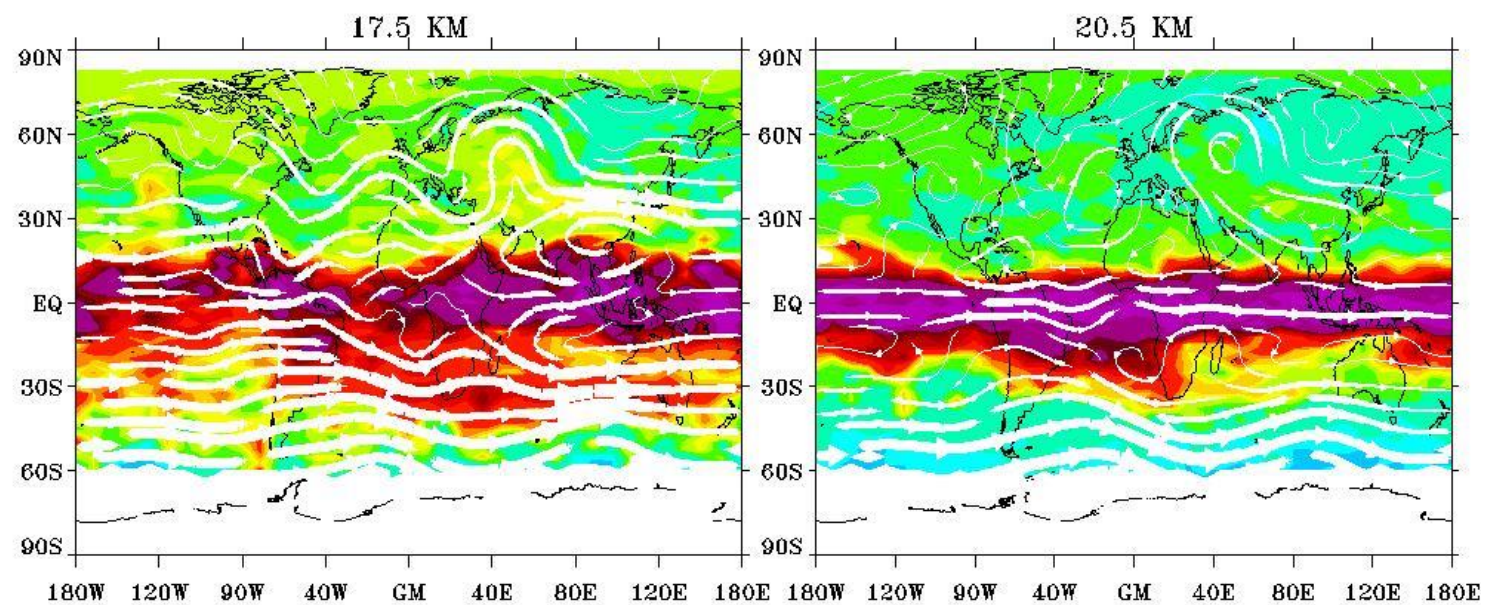
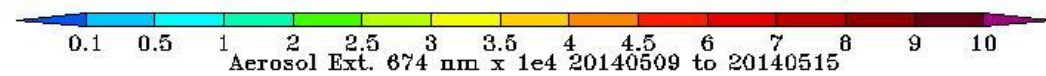




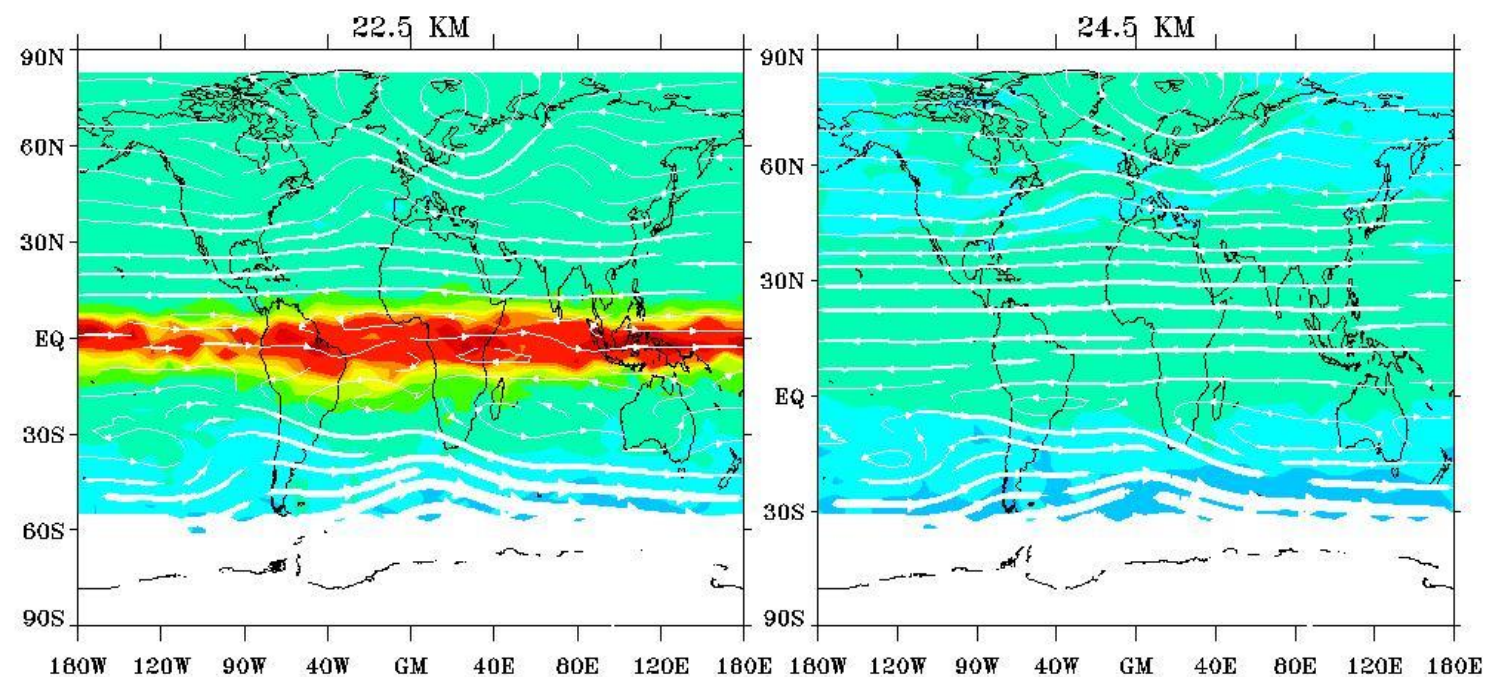
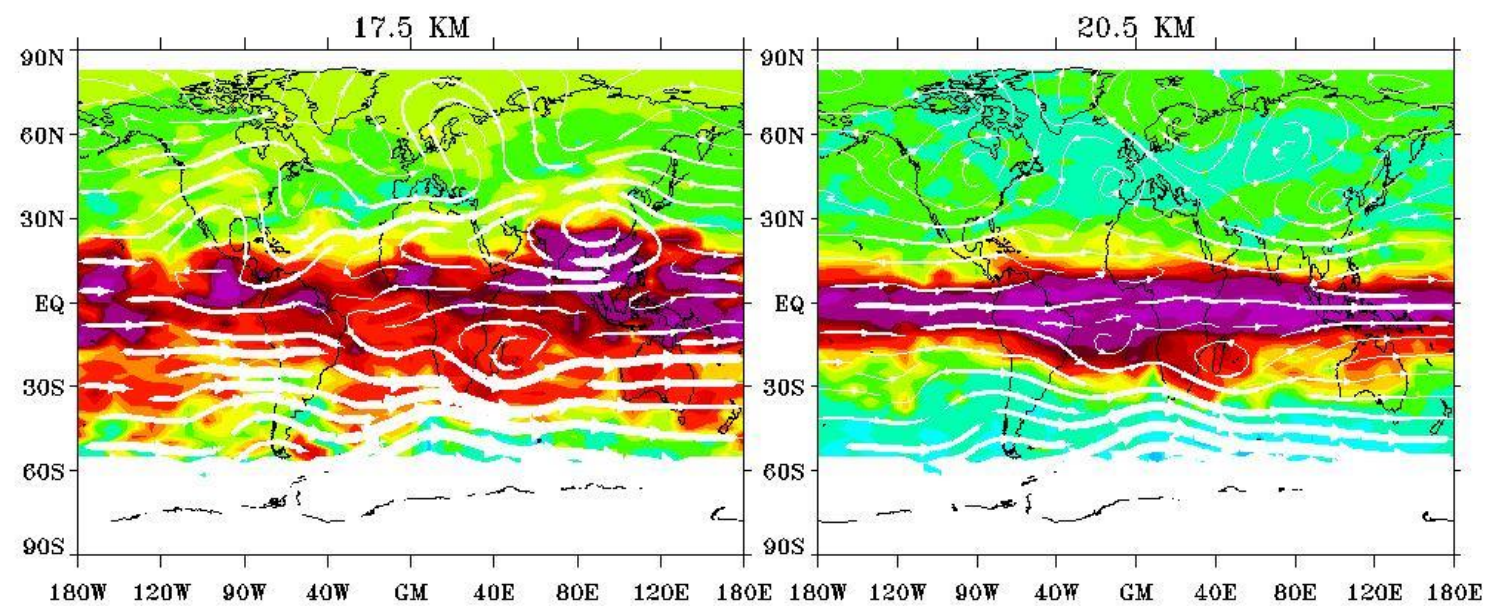
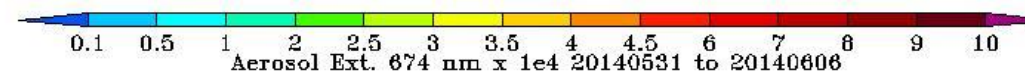




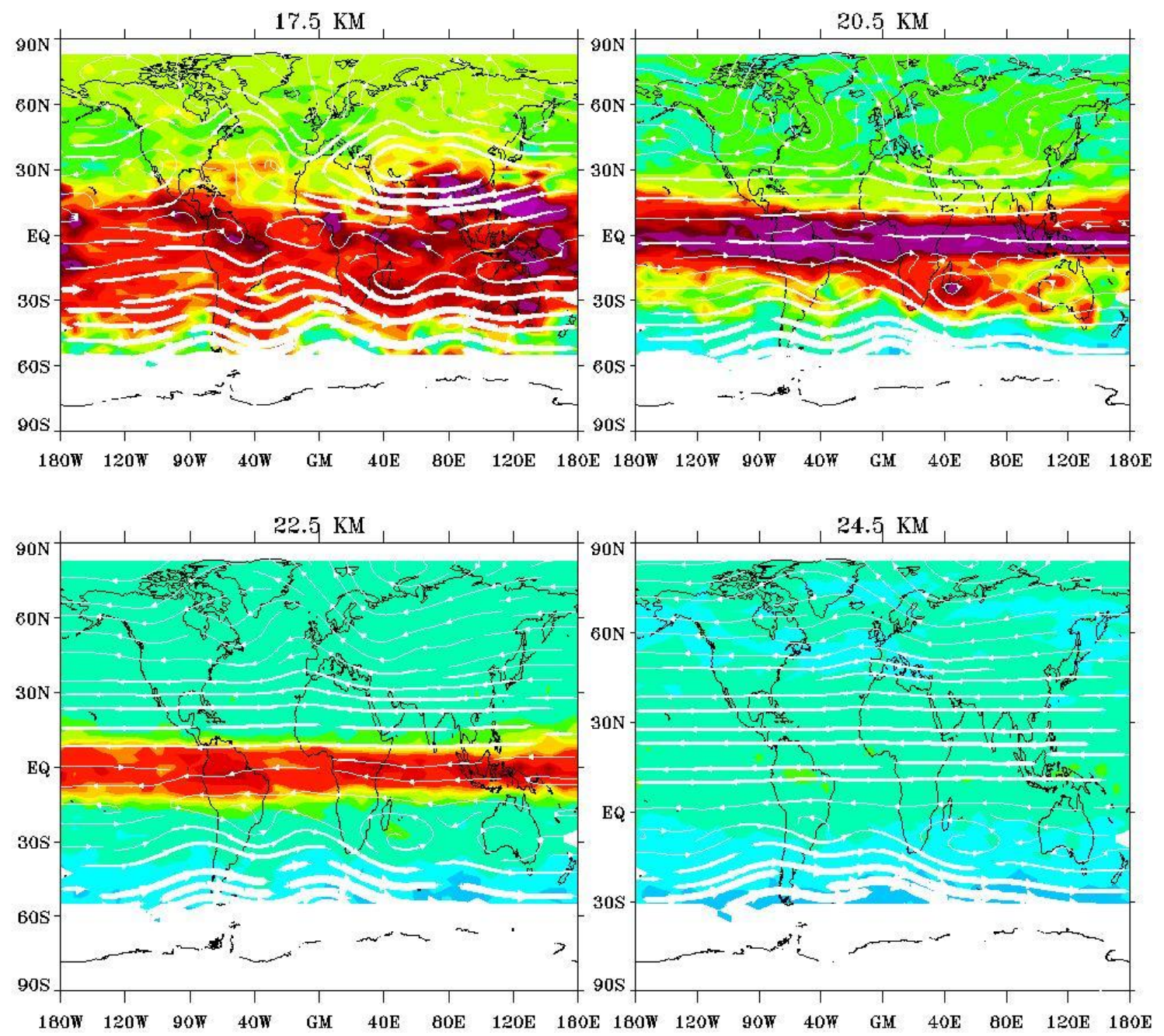
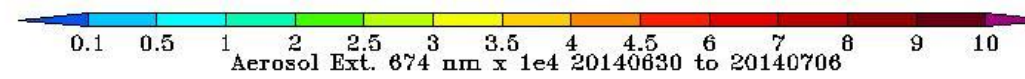




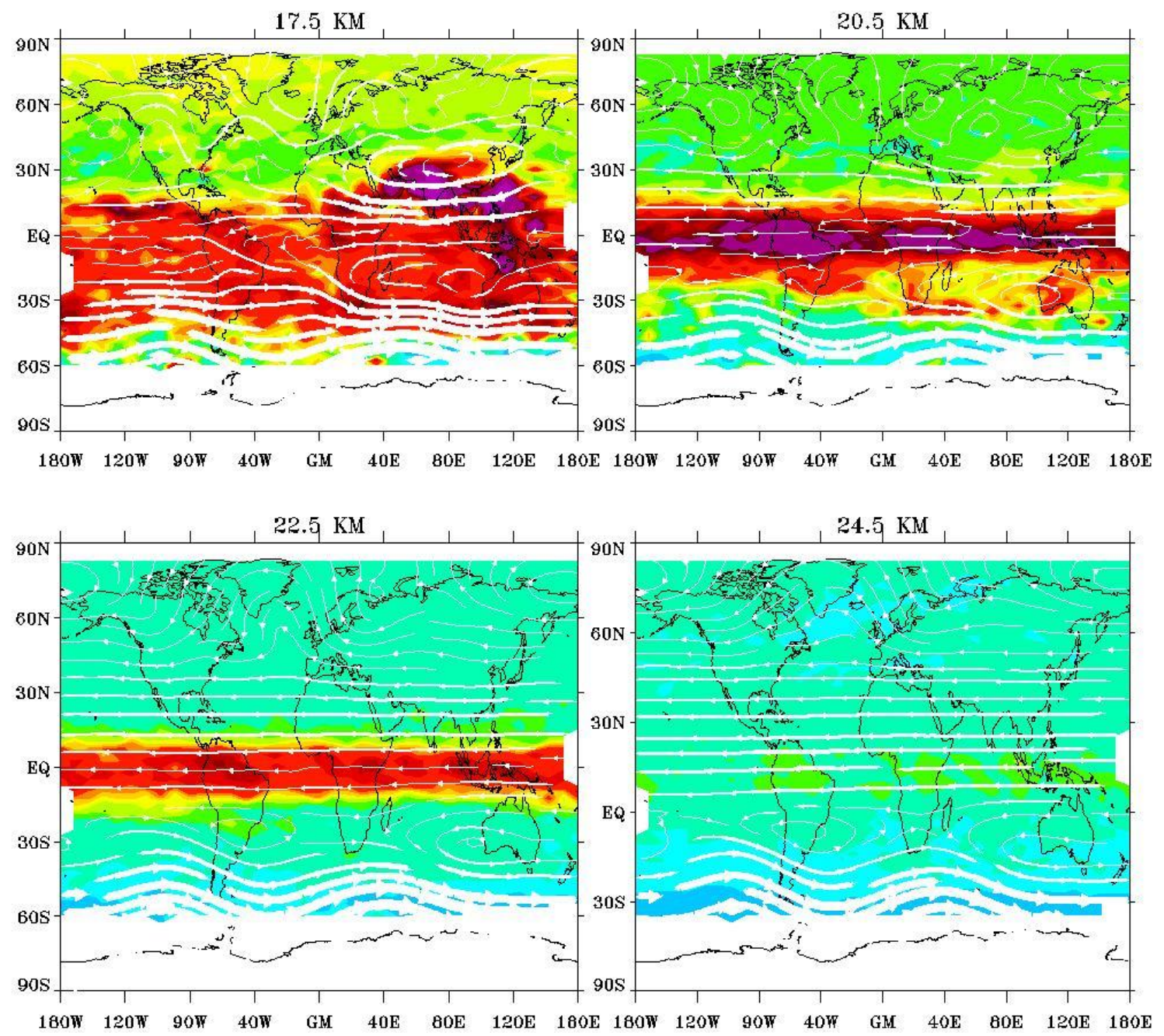
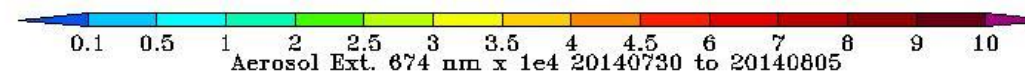




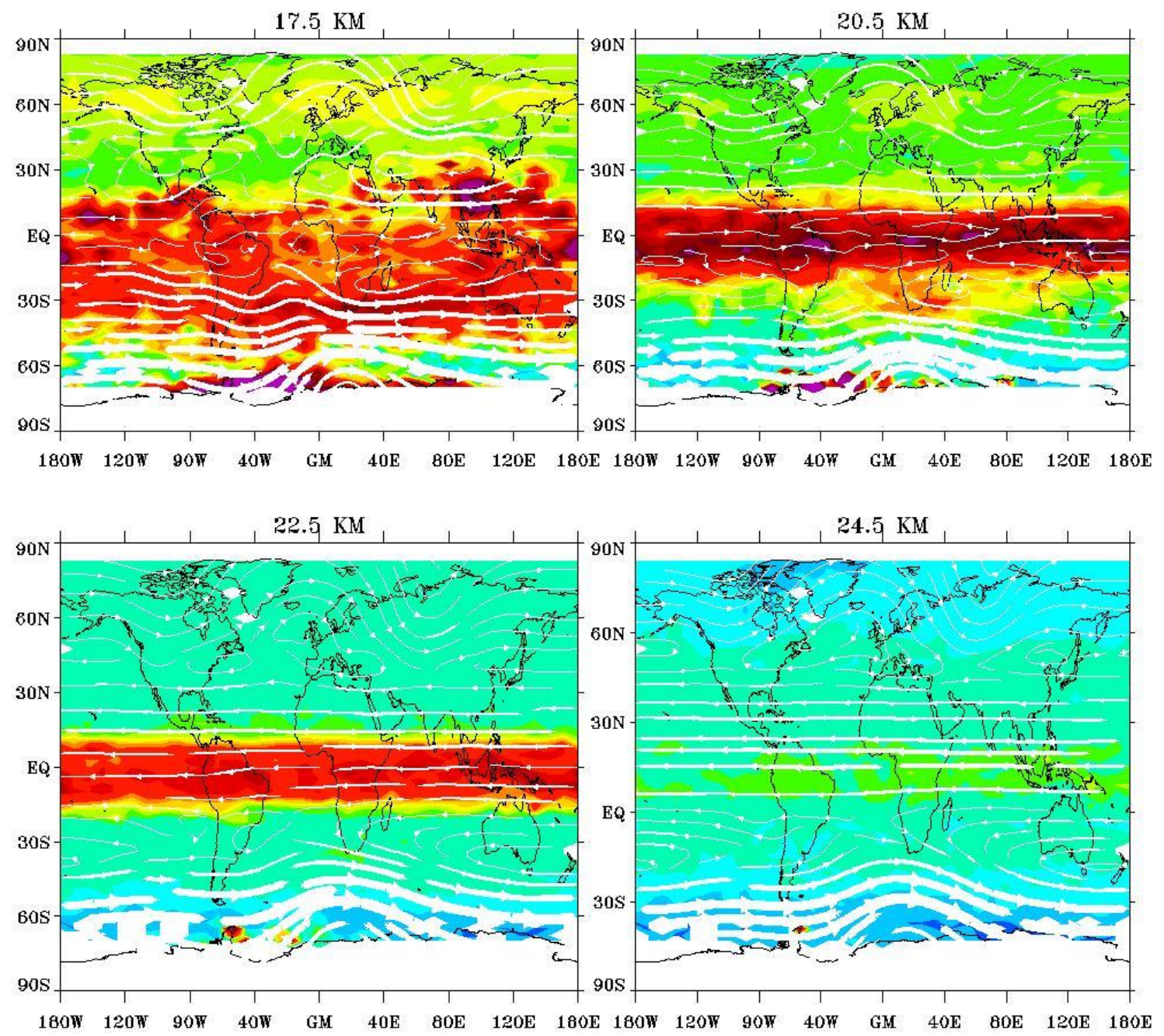
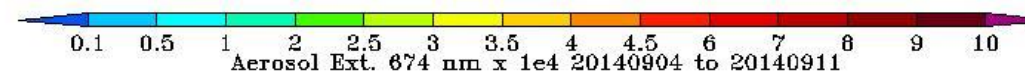




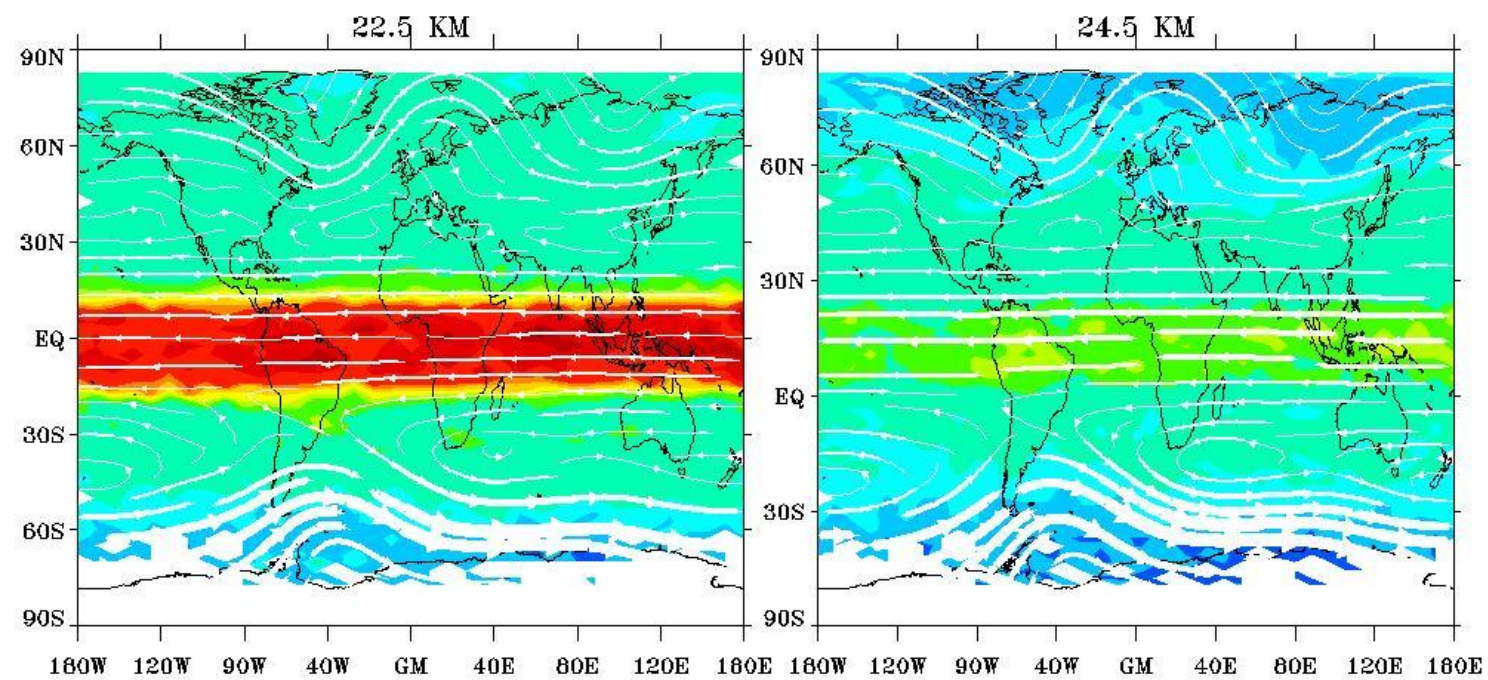
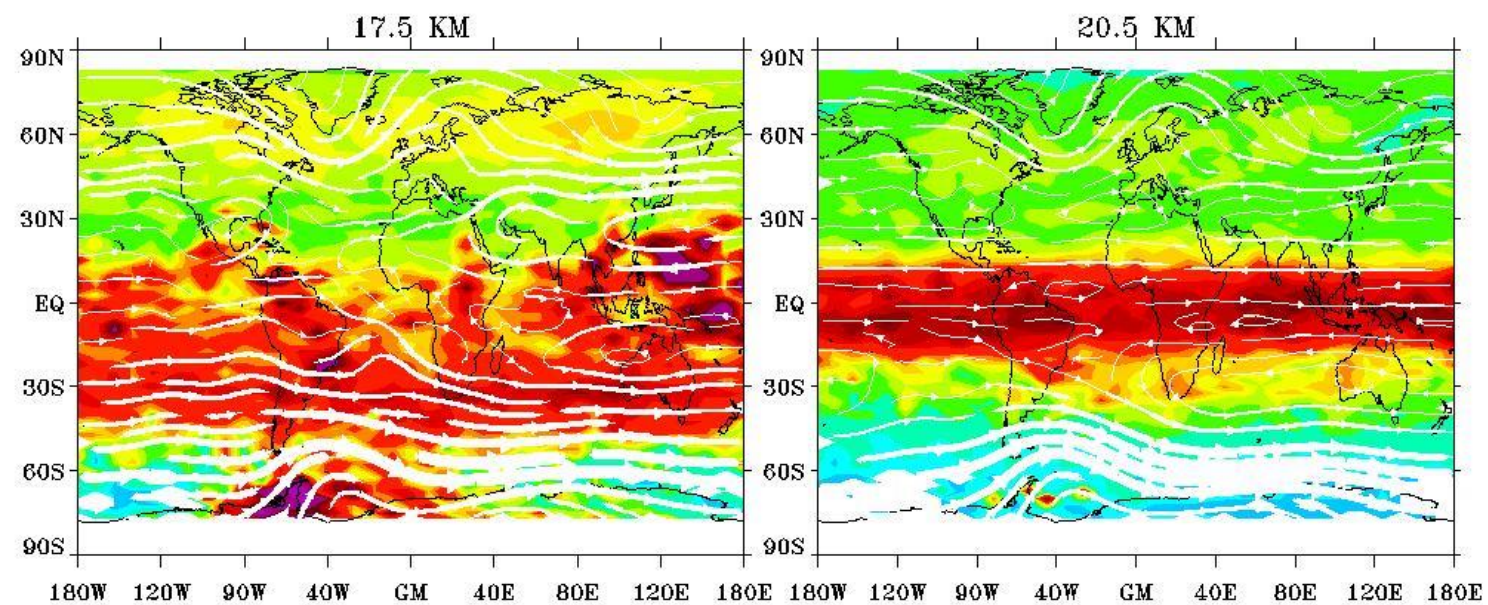
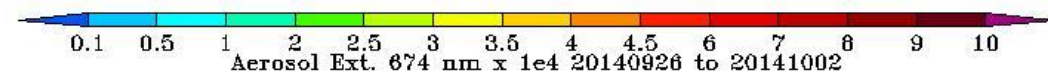




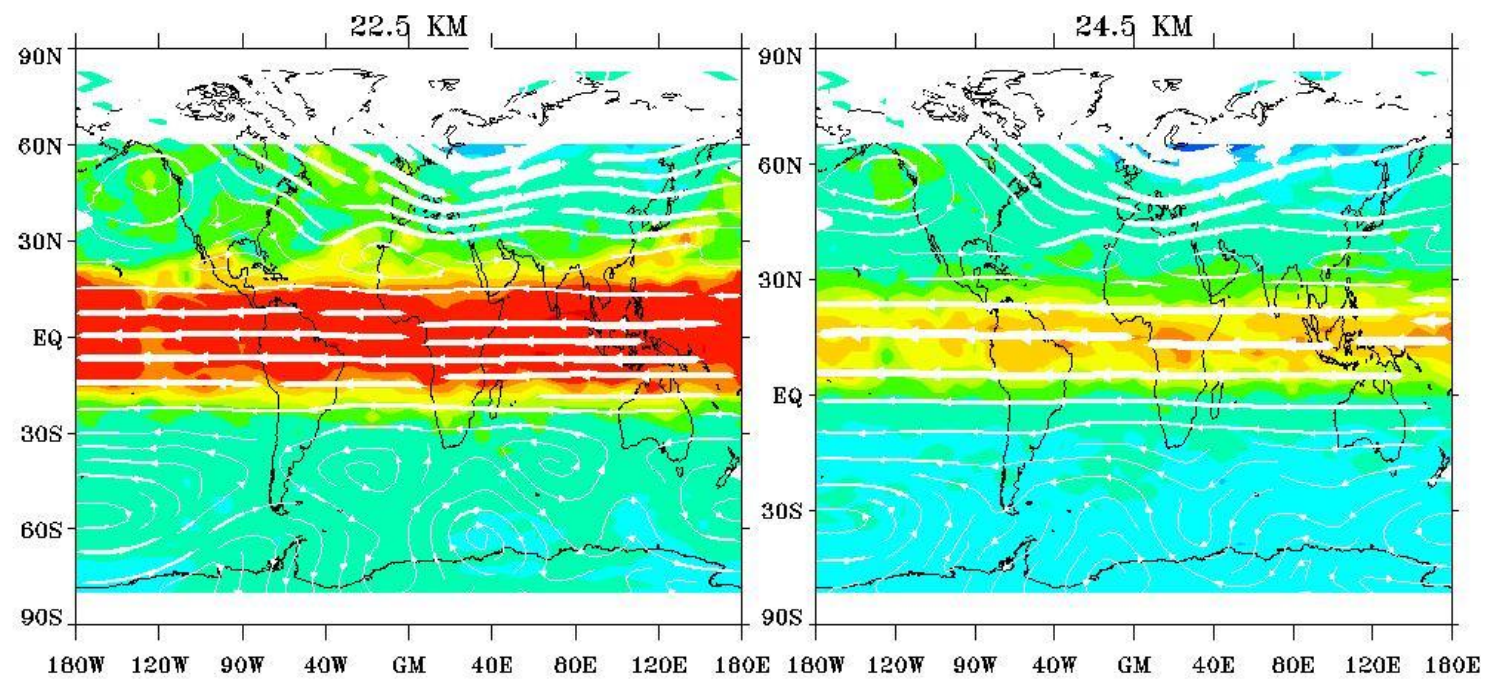
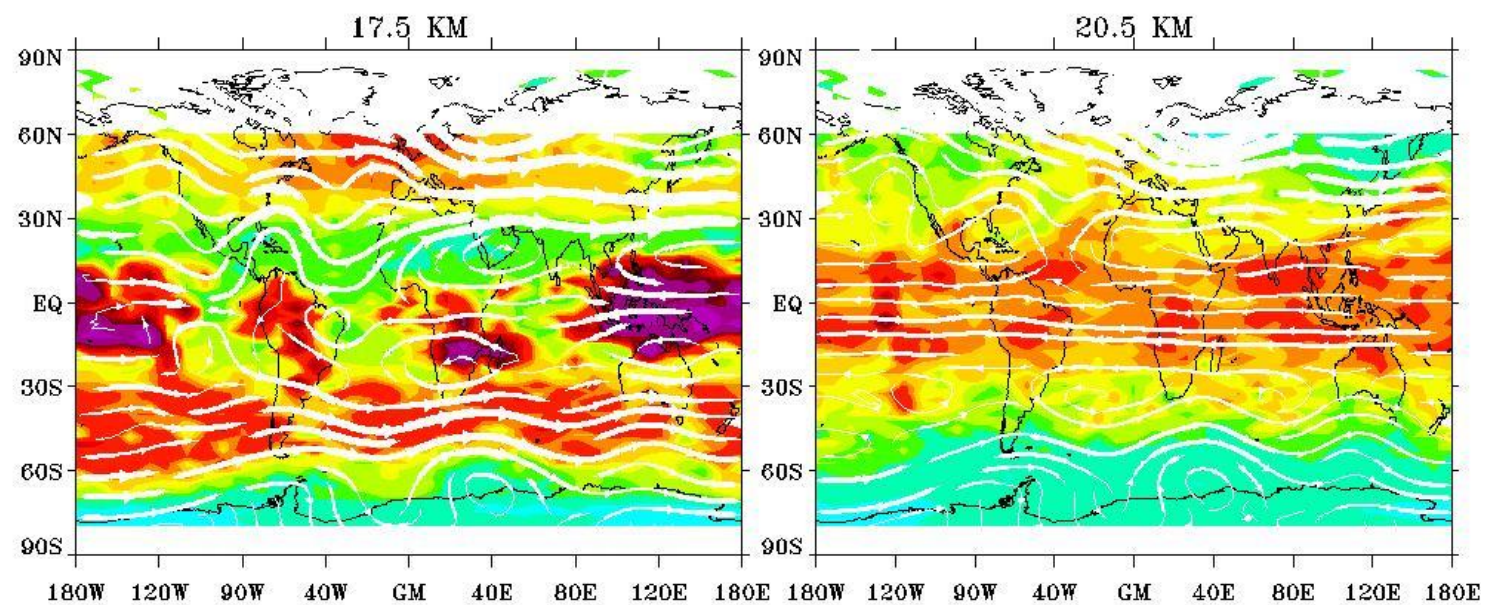
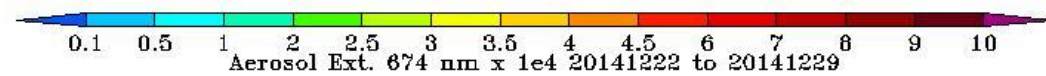




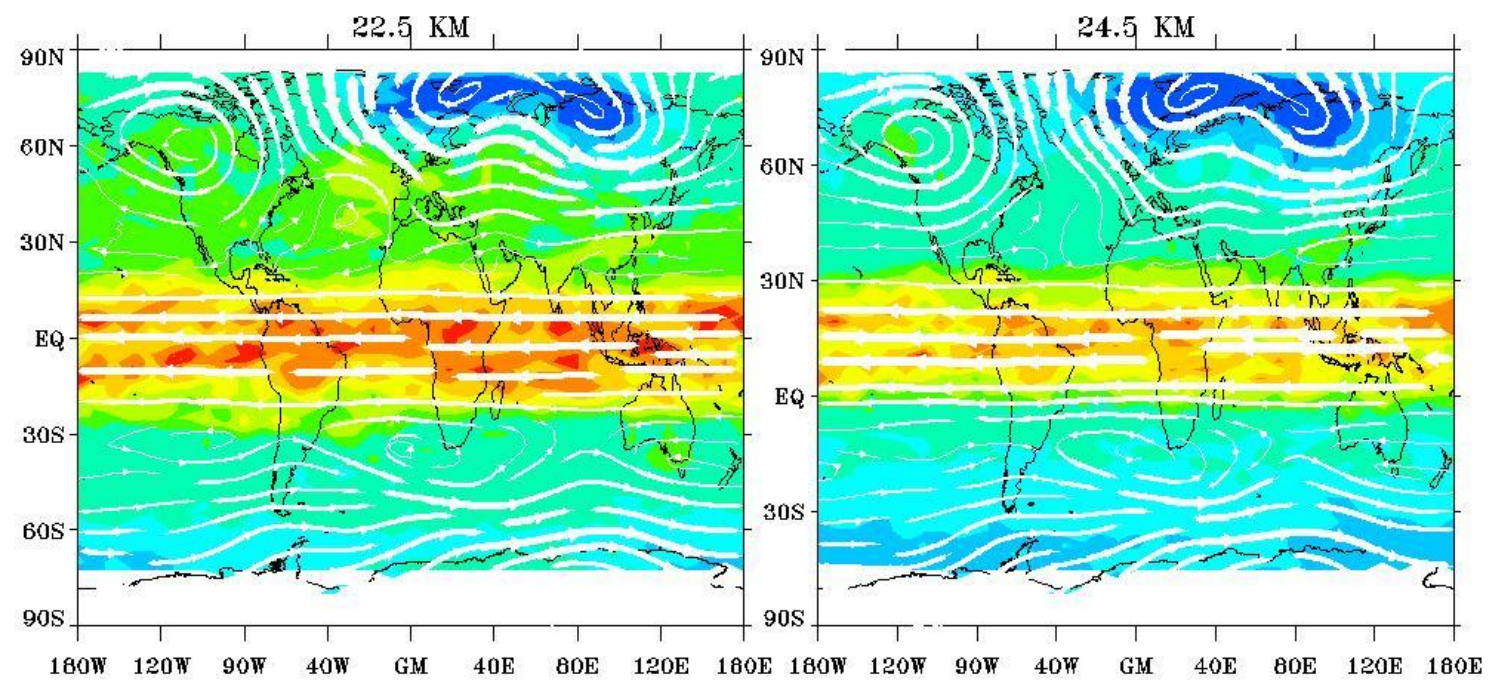
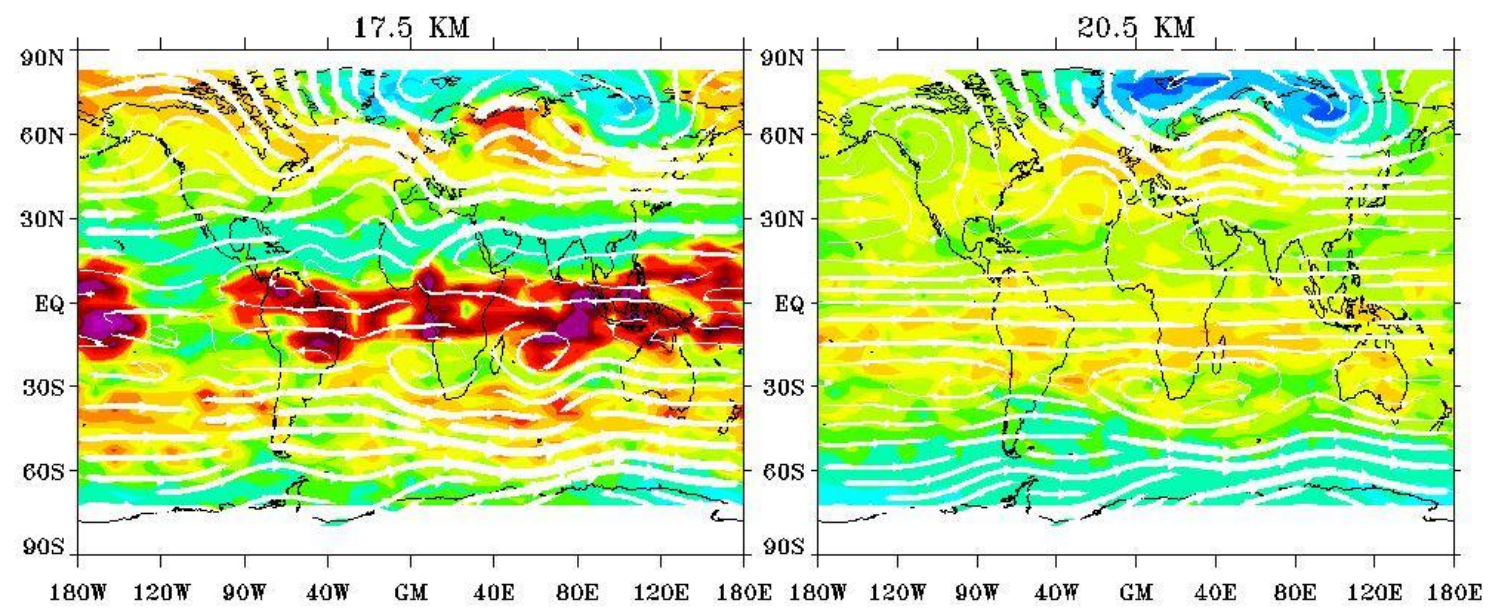
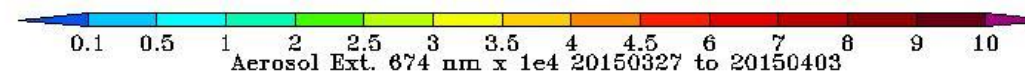








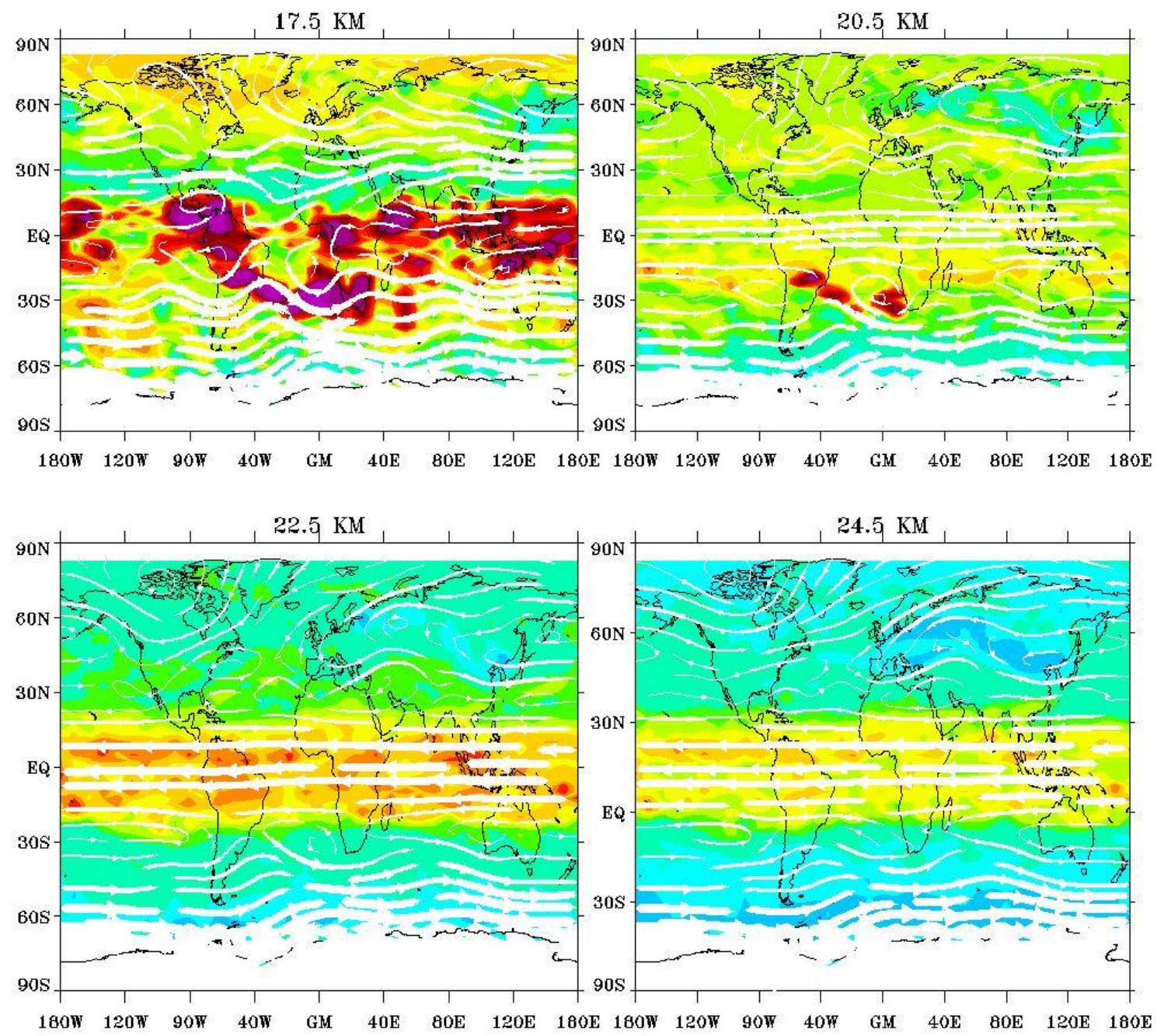
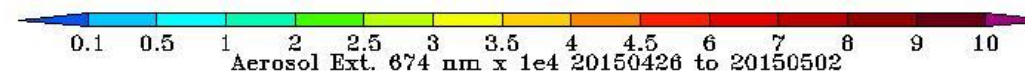




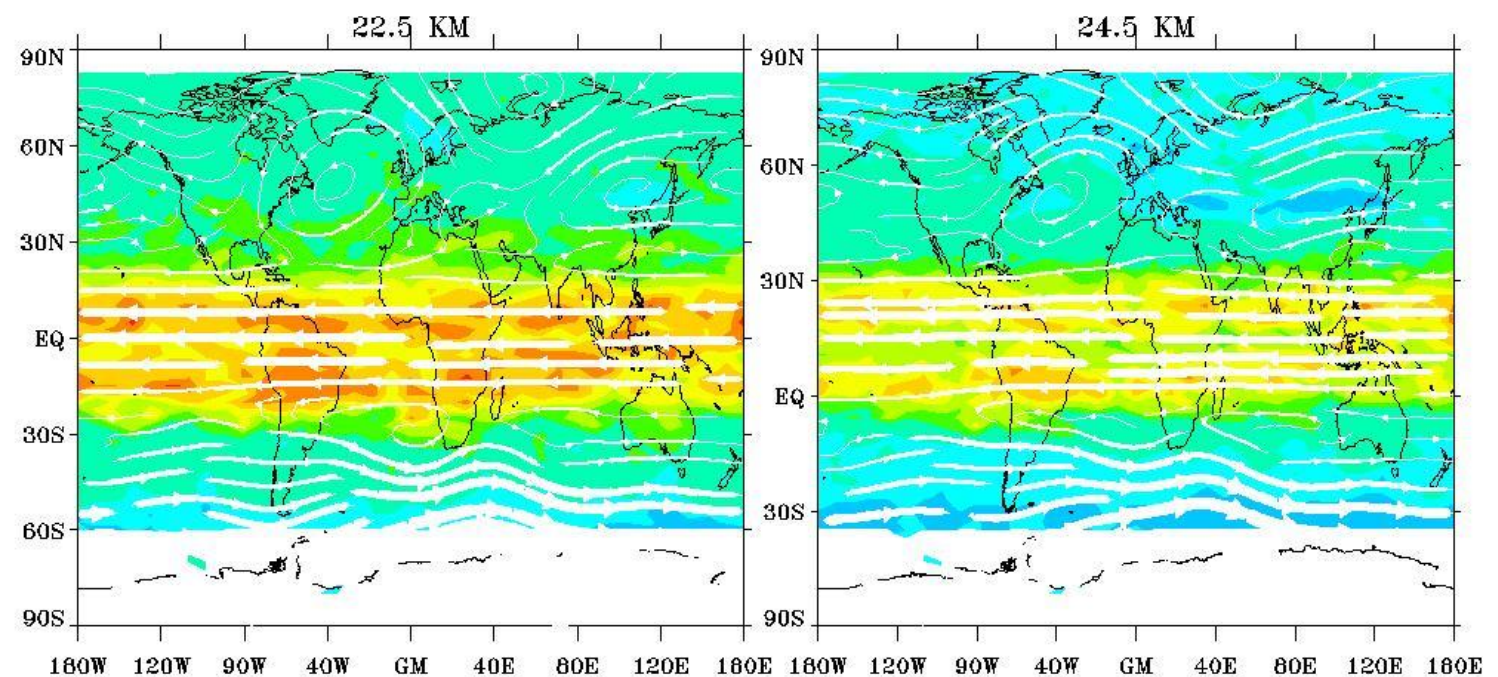
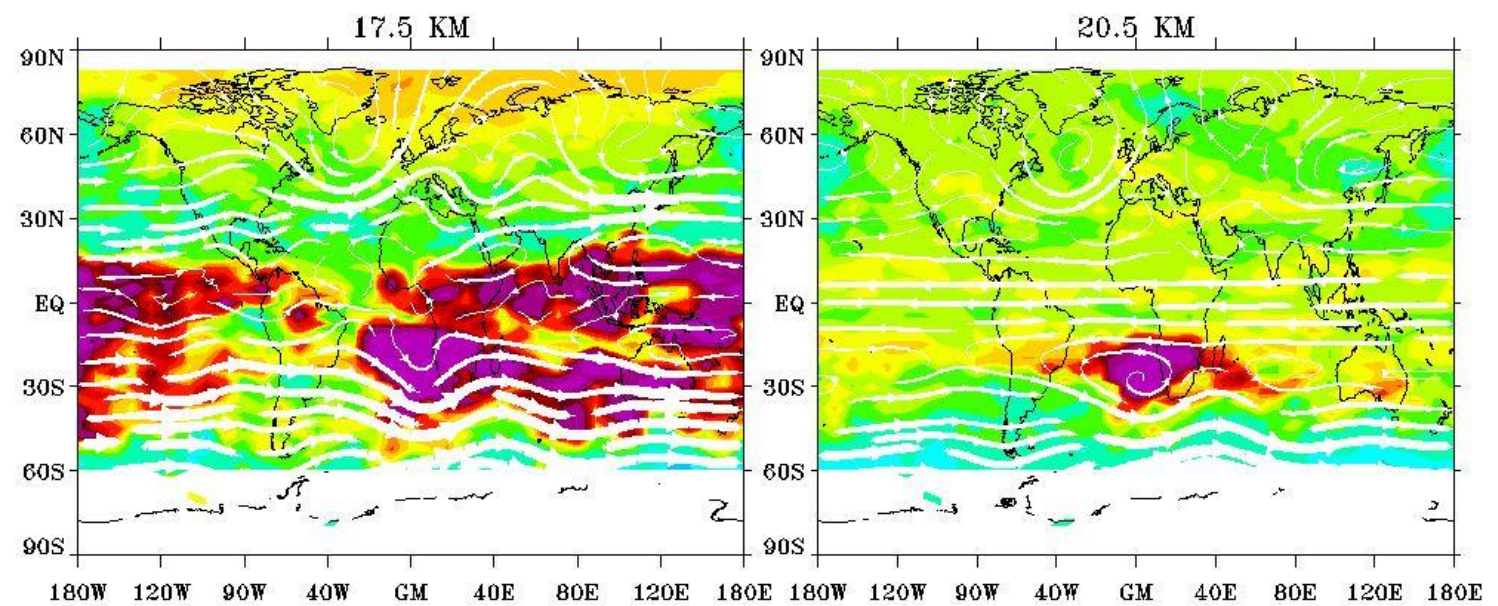
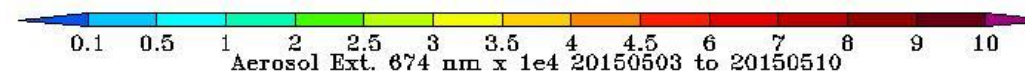
# Tracking Calbuco

- Weekly maps
- Any of the volcanic aerosol reached the vortex? What altitudes?
- What was the effect of aerosol on this year's ozone hole, which was one of the largest in this decade?





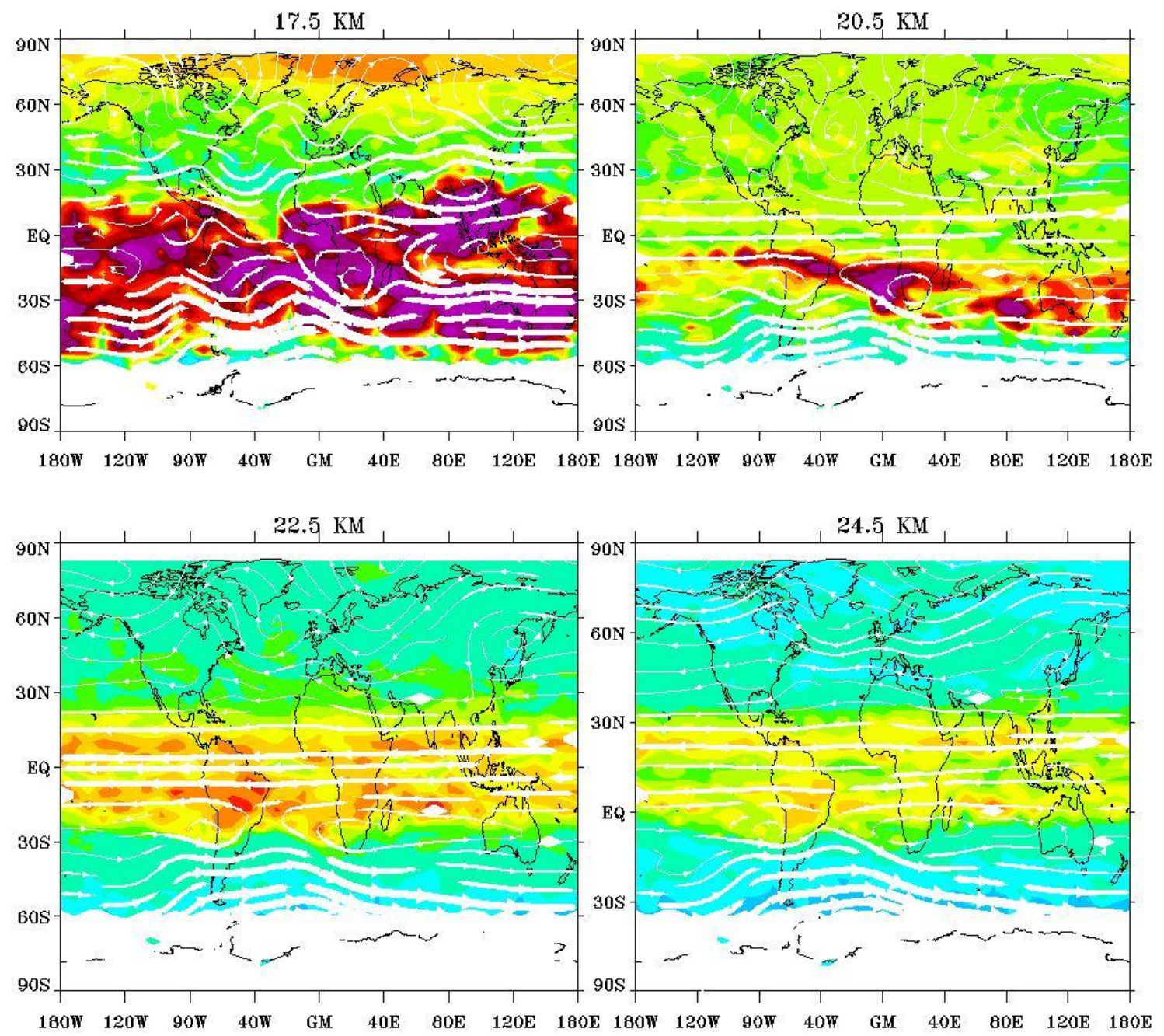
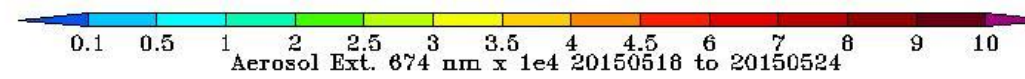




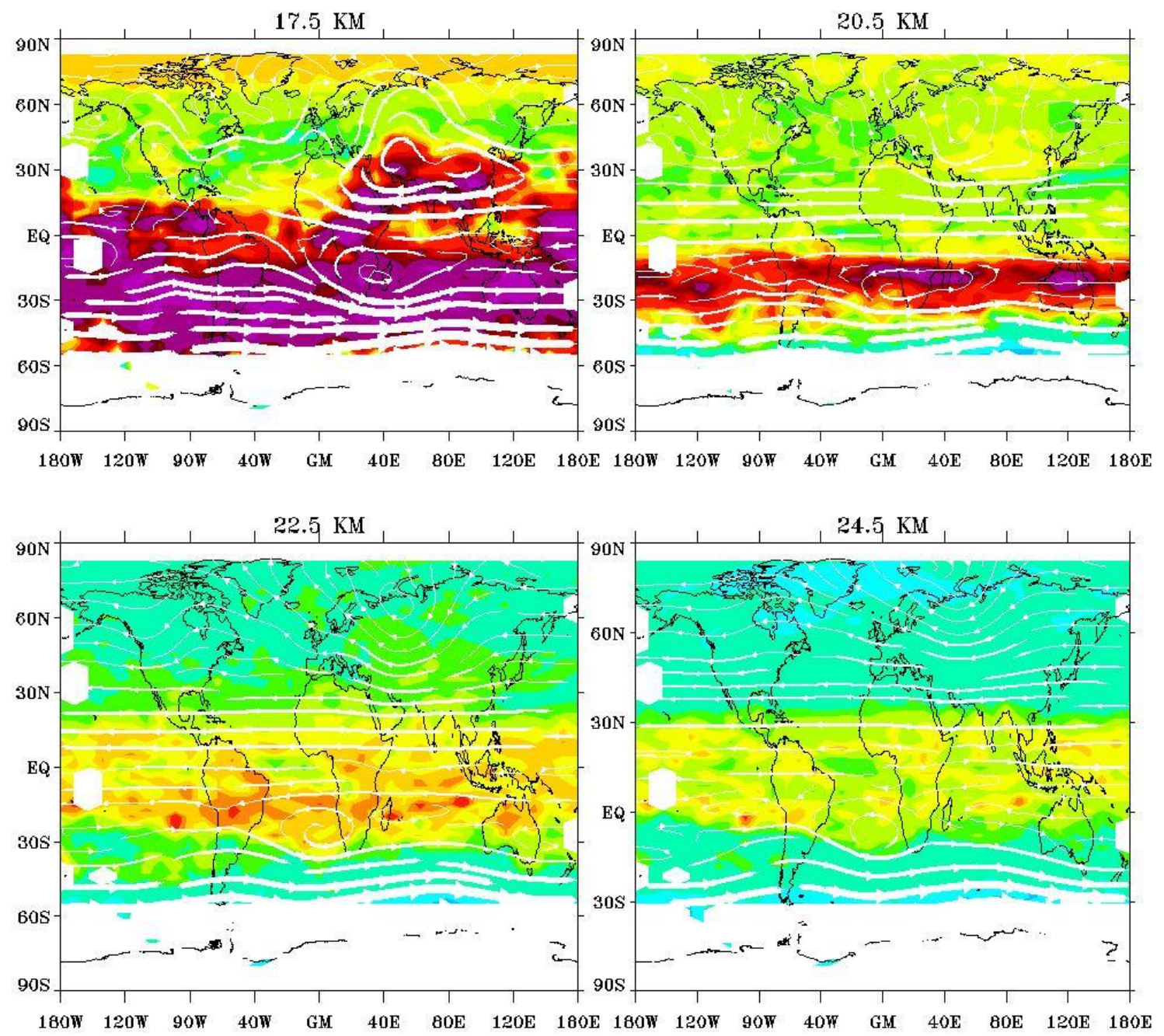
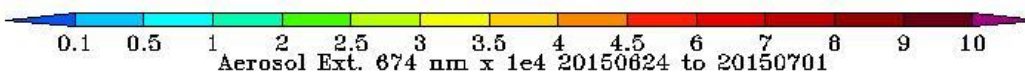




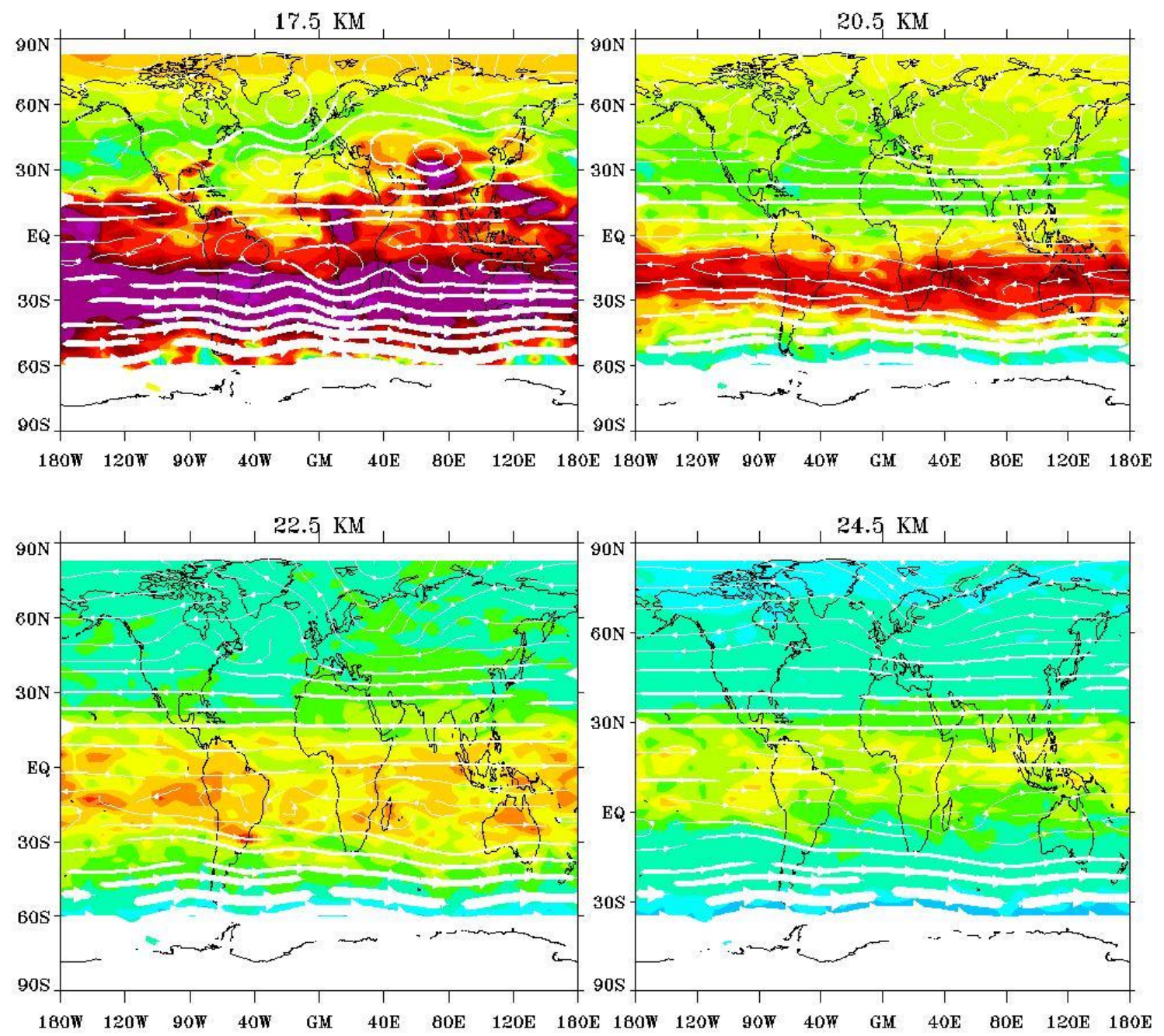
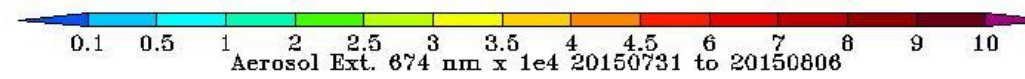




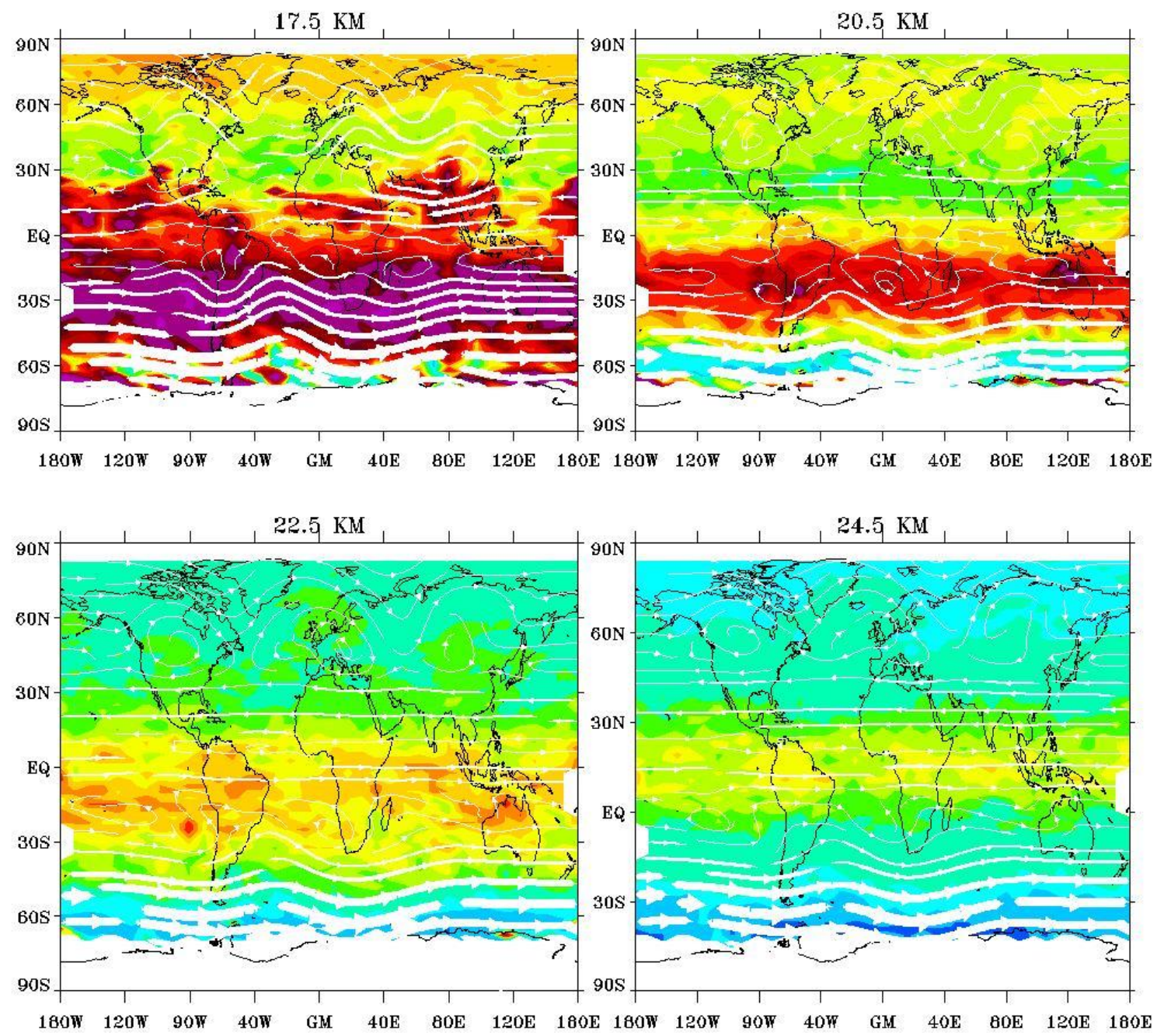
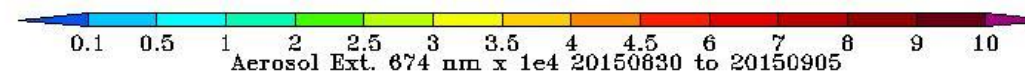




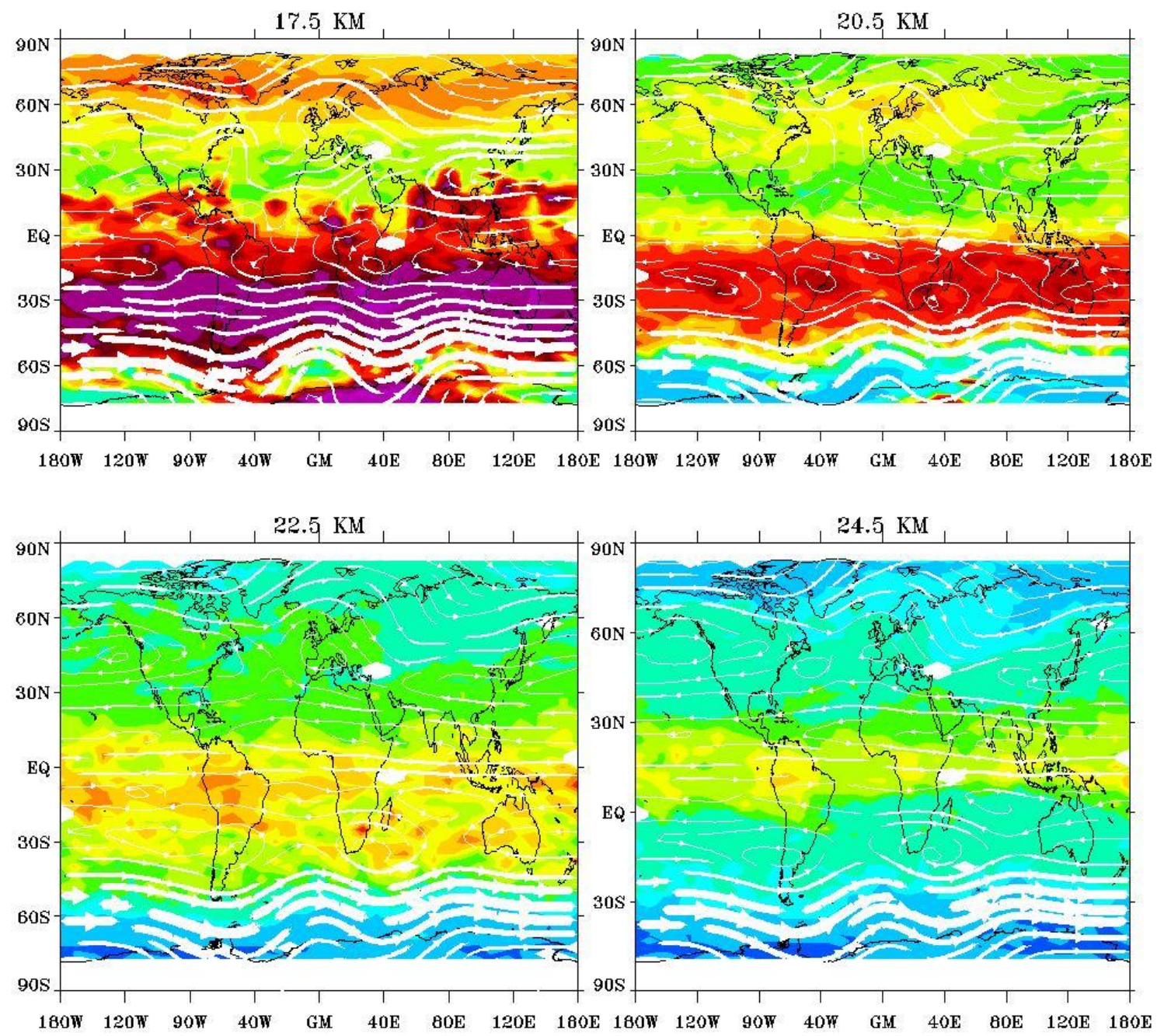
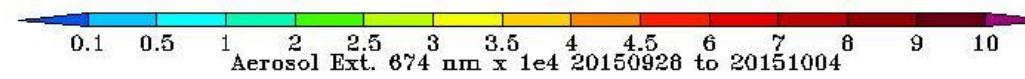




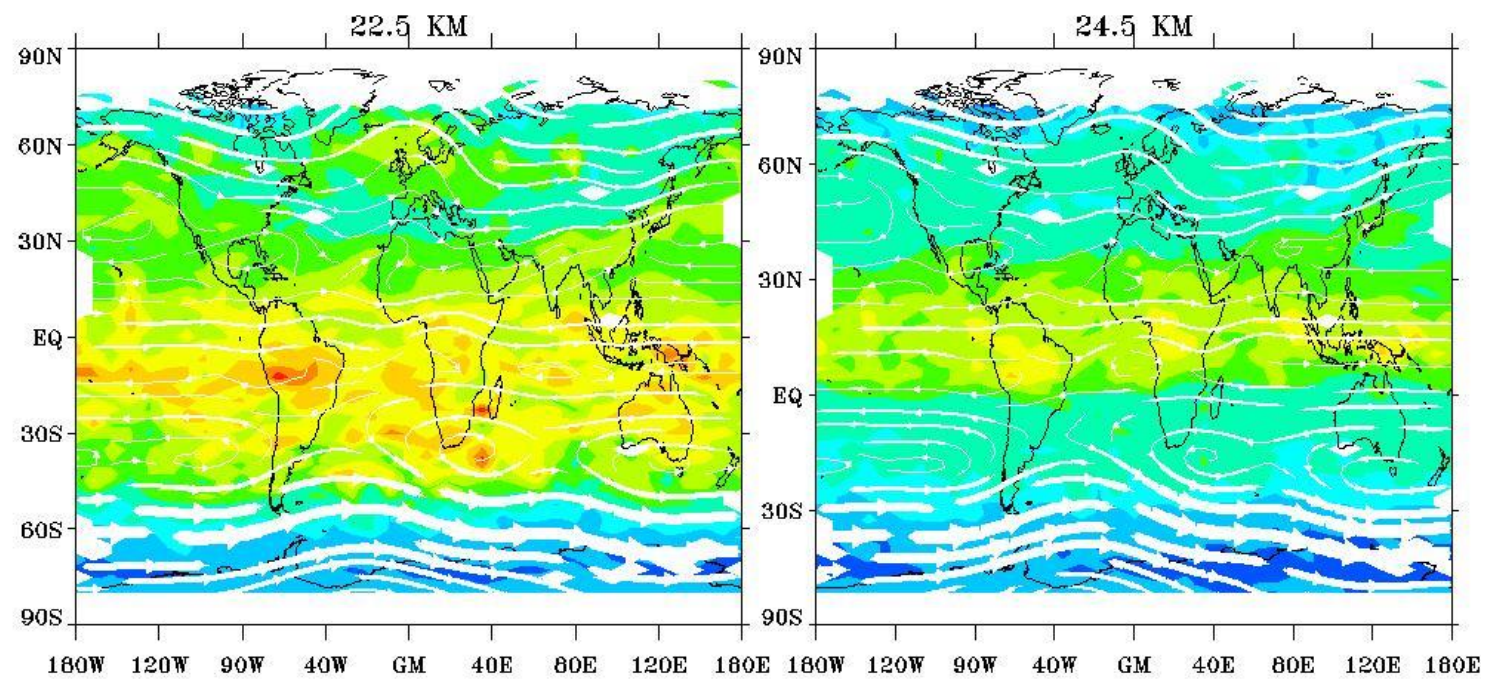
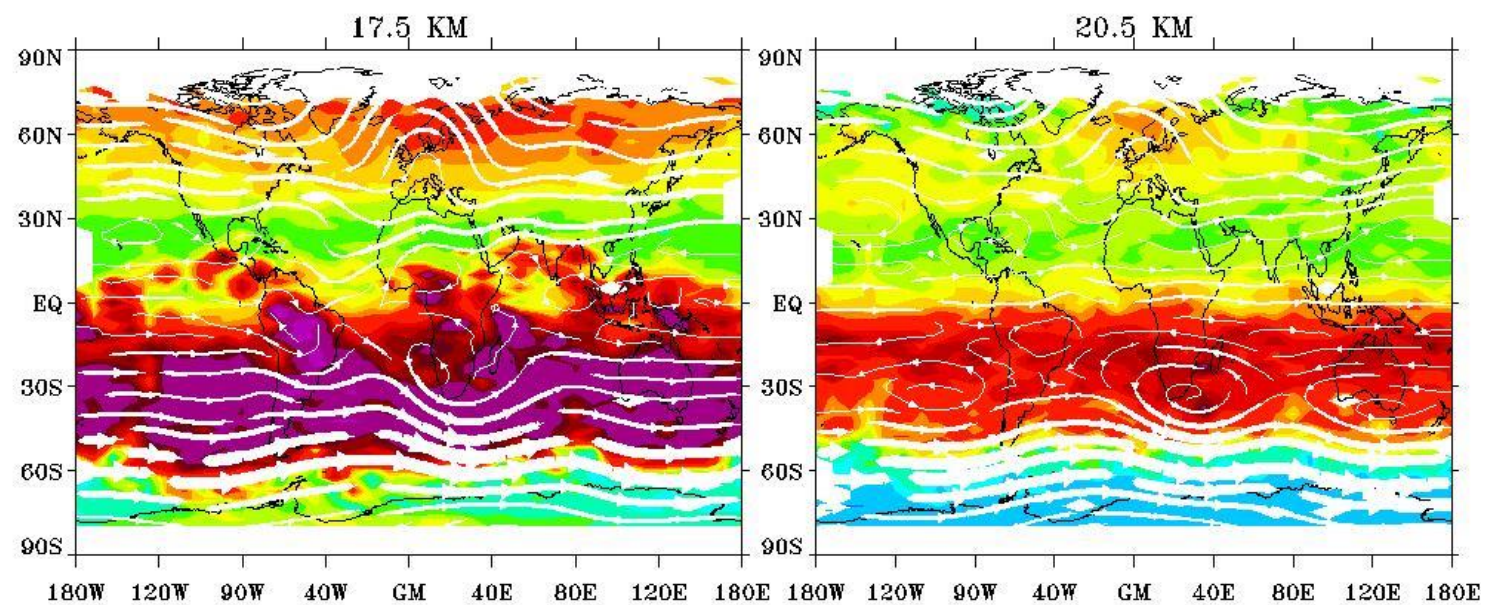
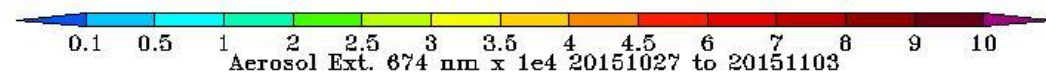




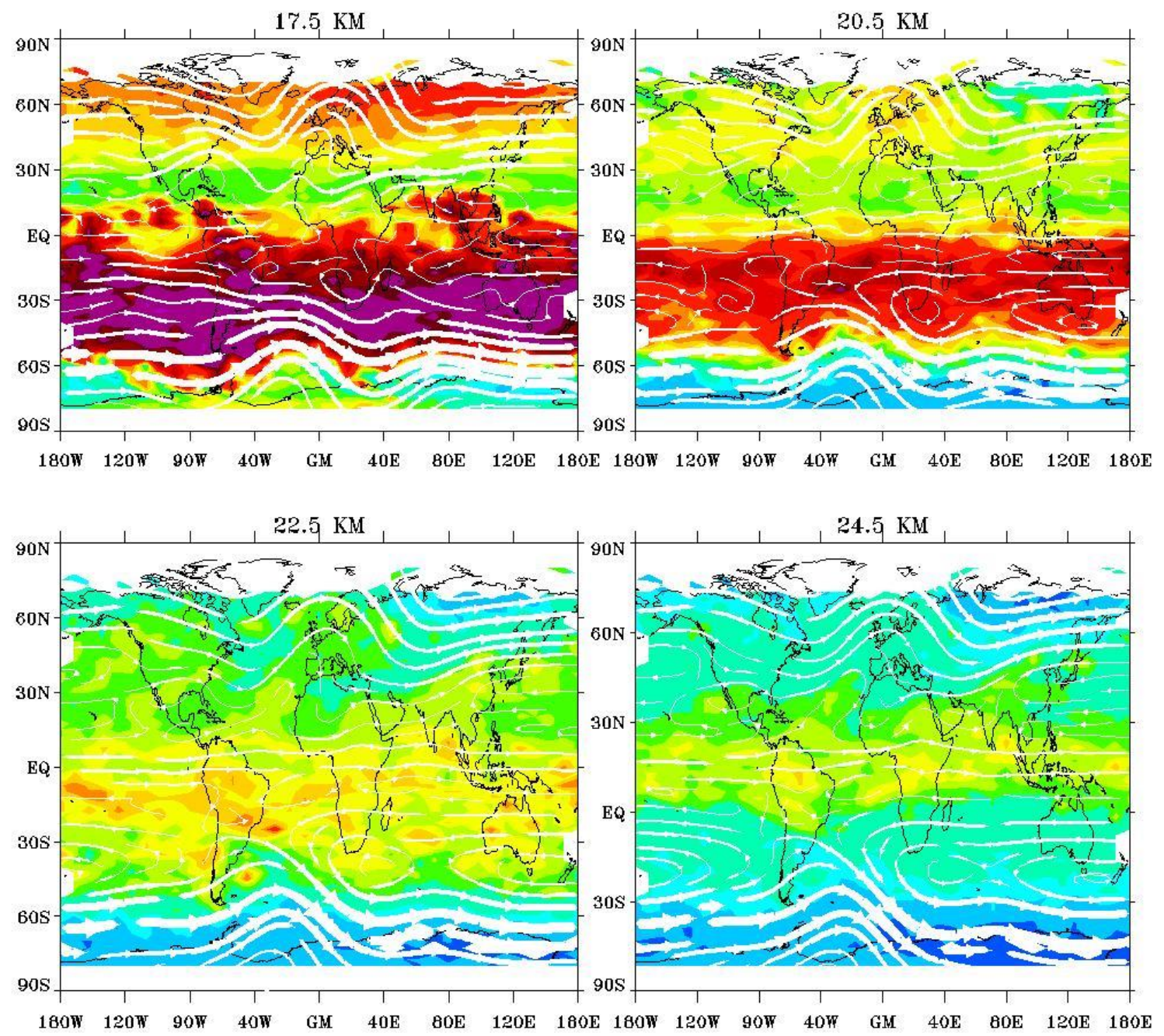
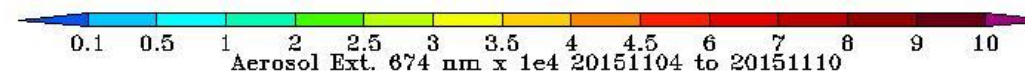




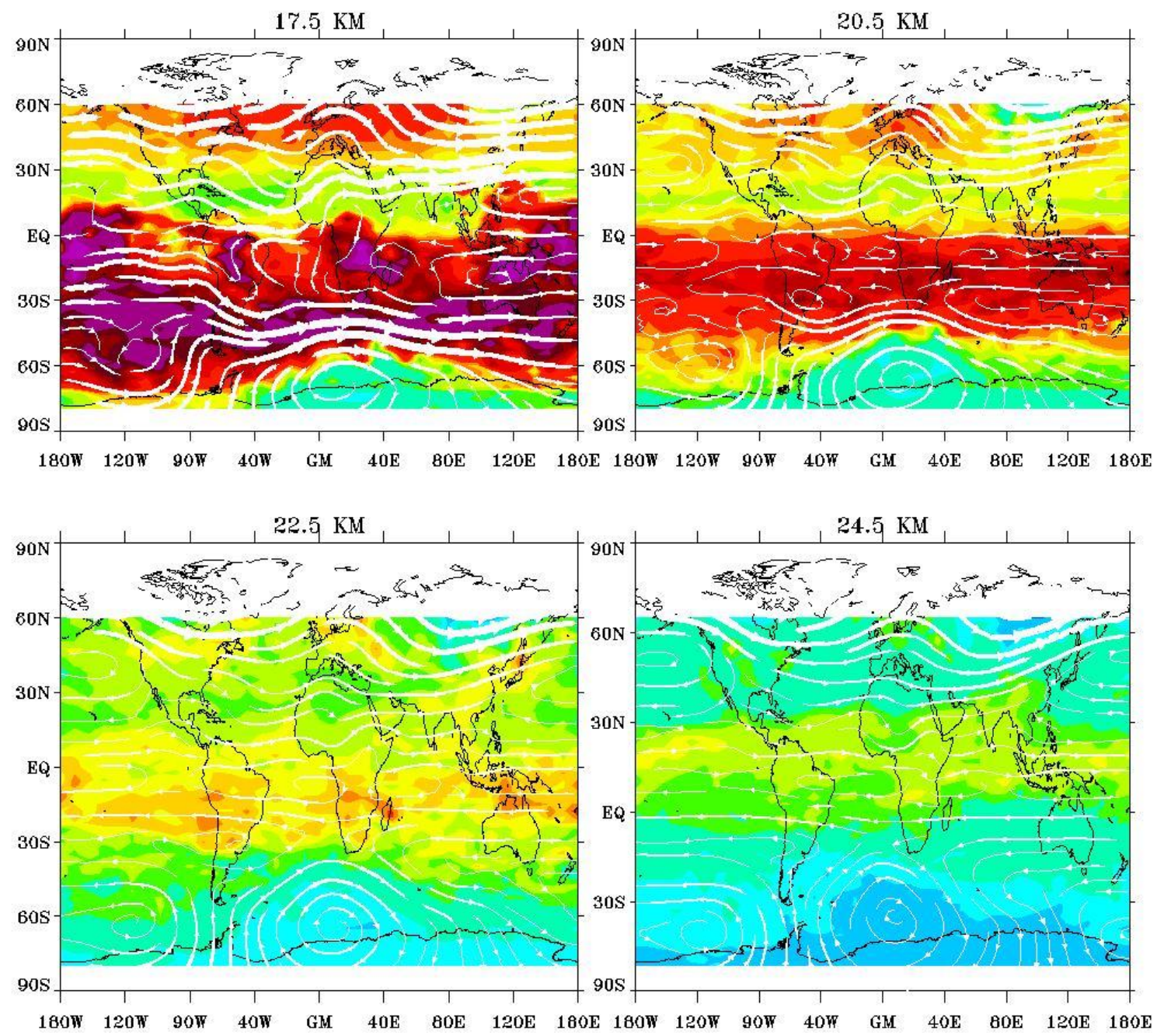
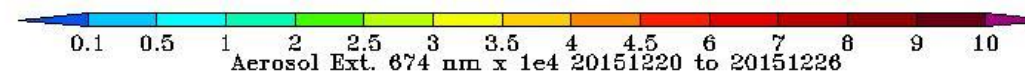




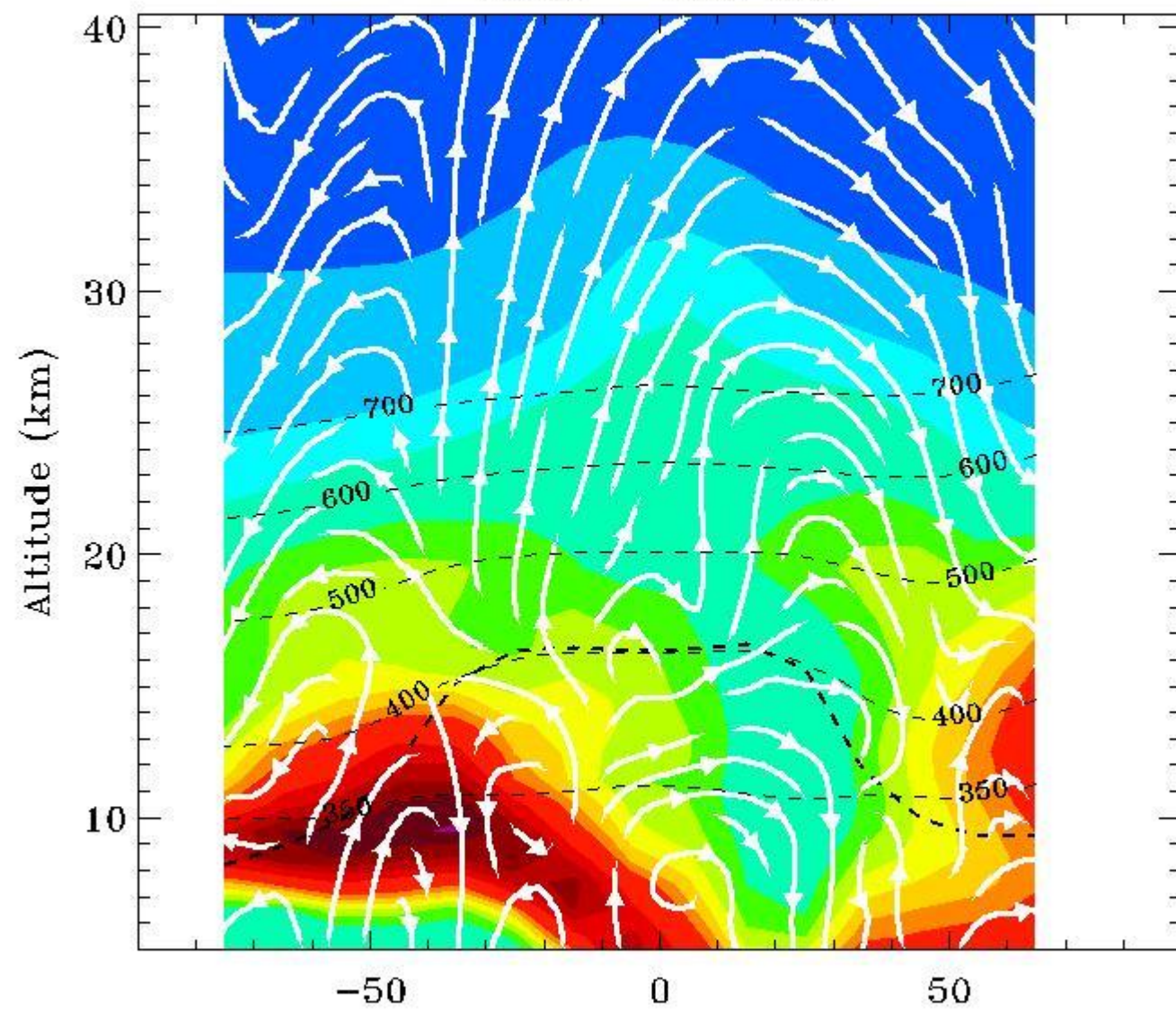






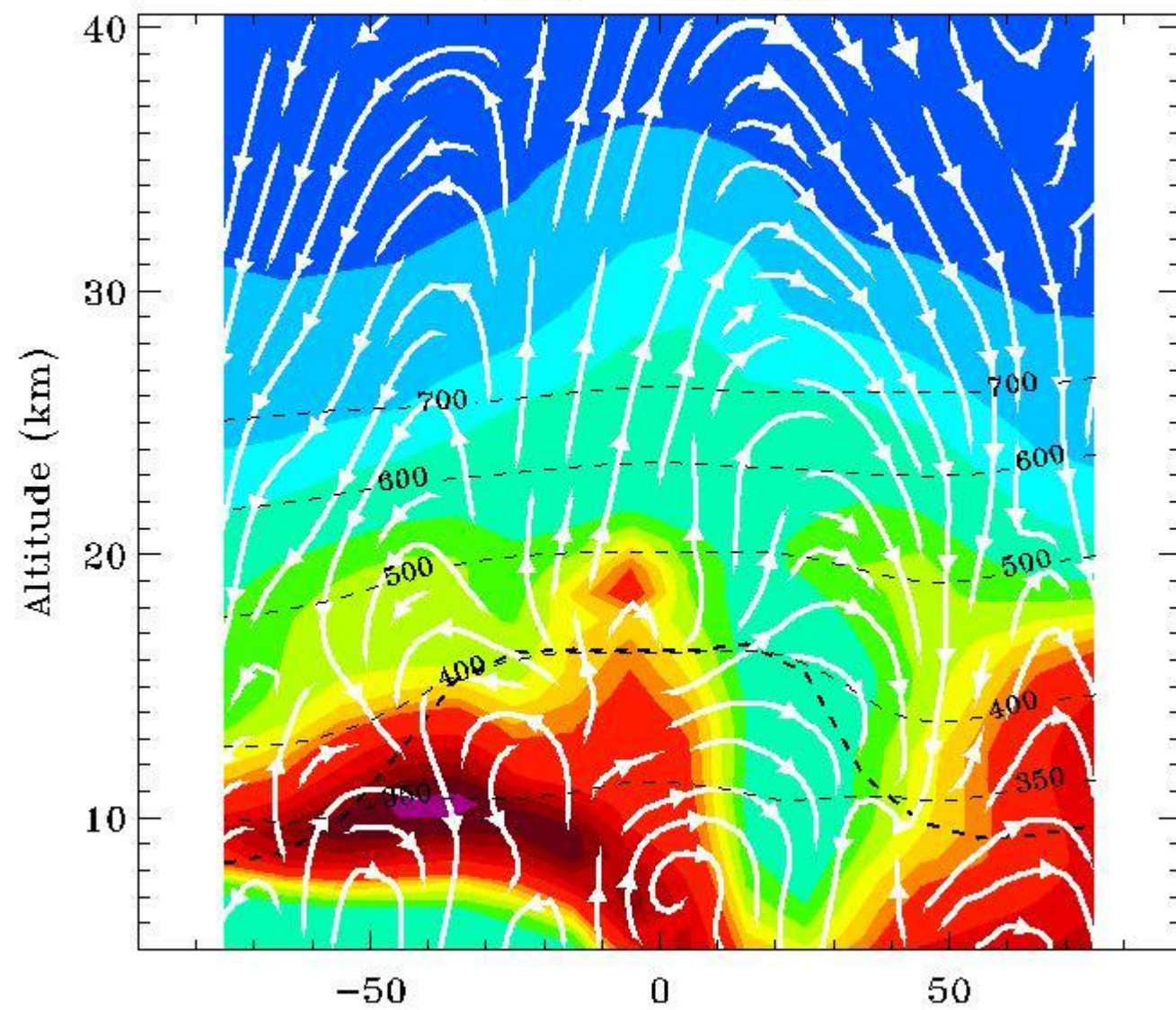


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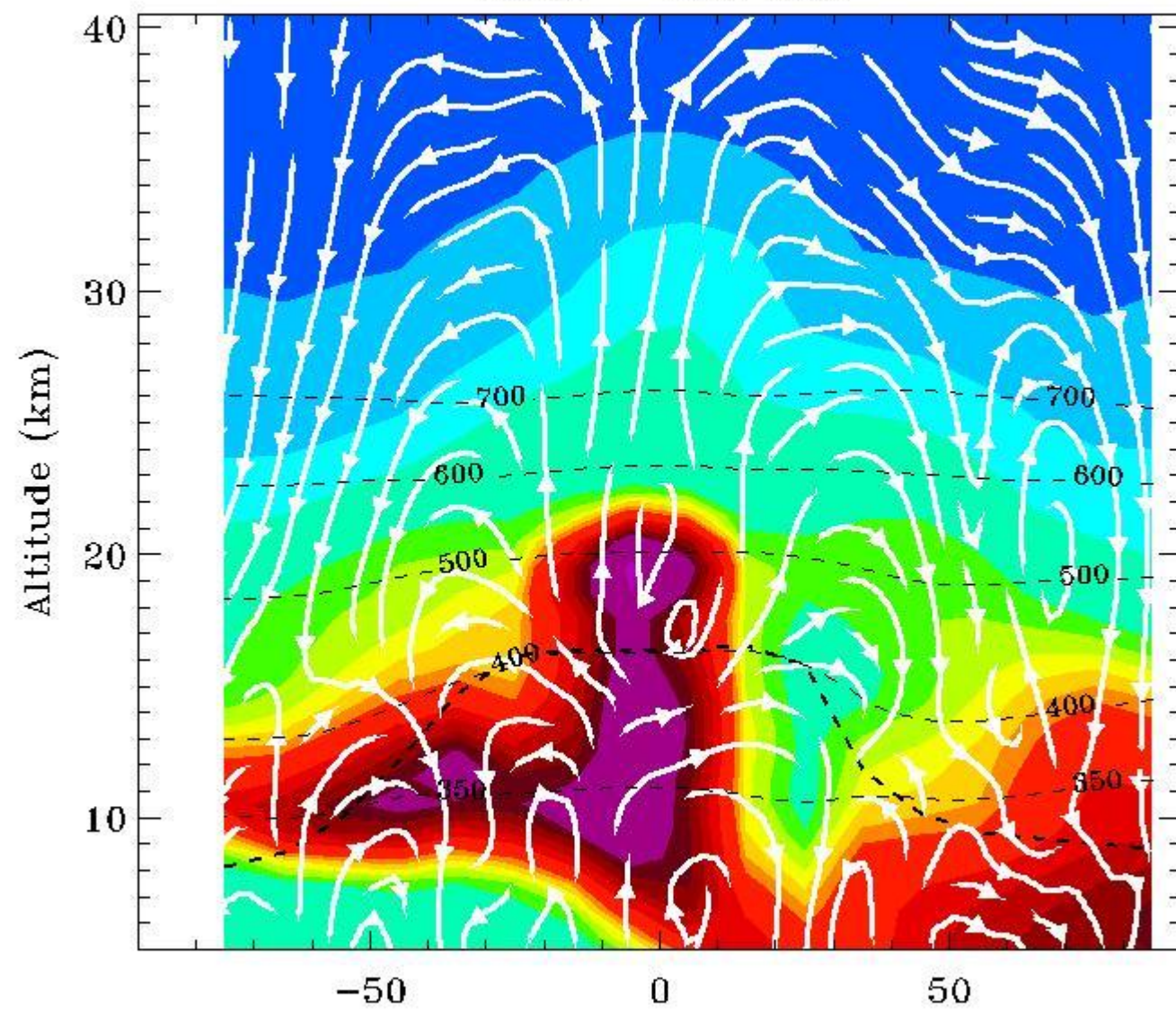


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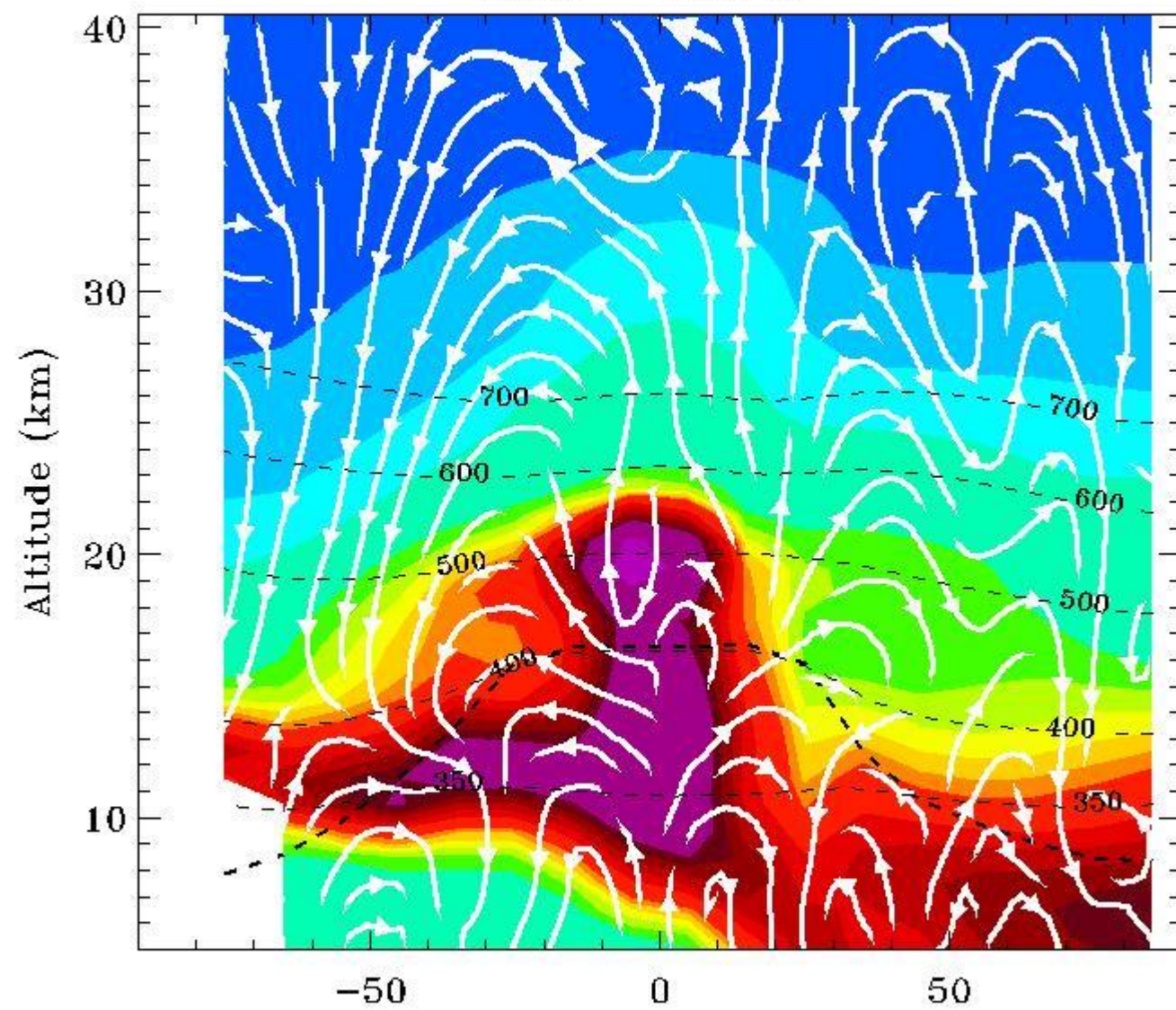




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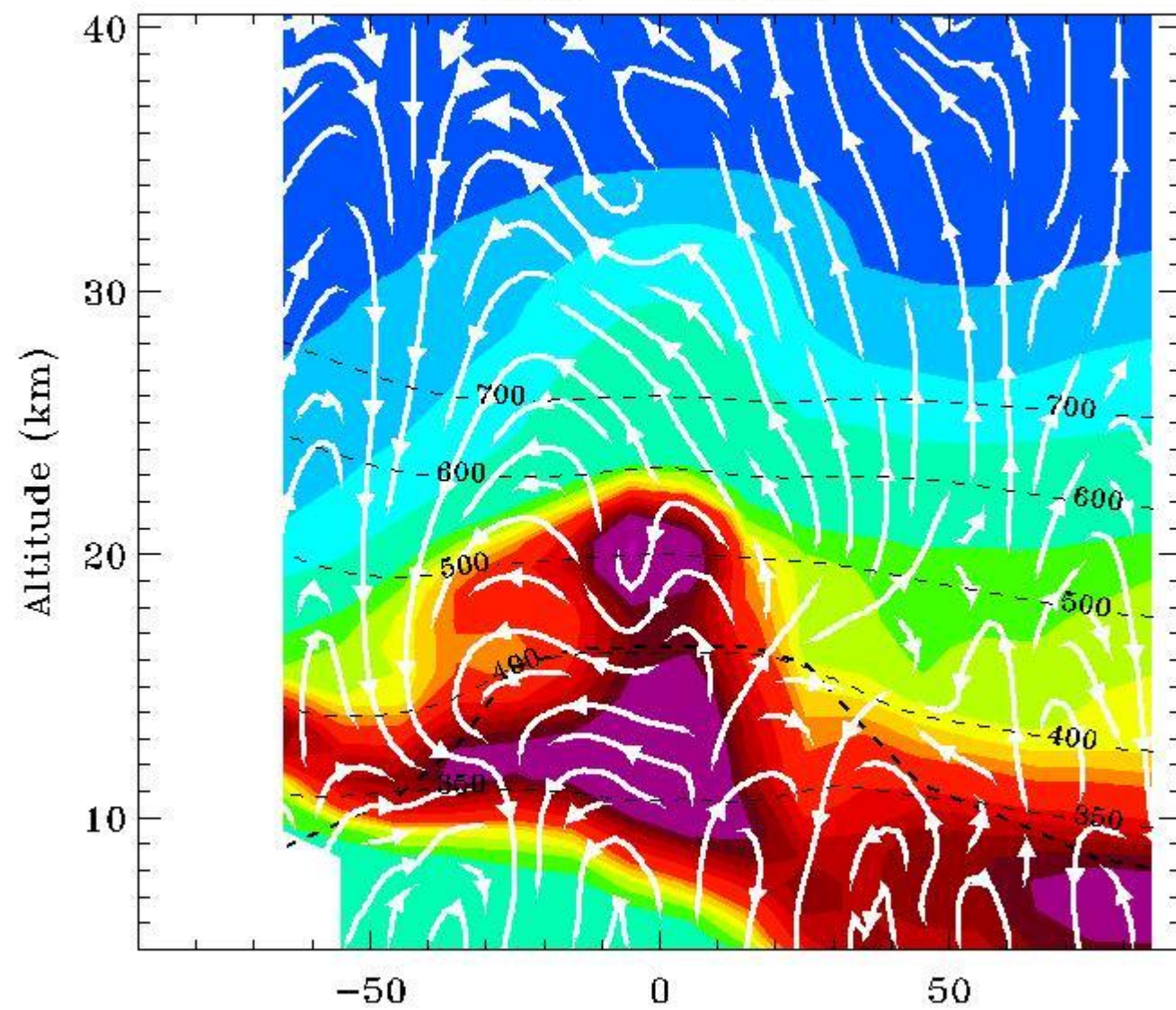


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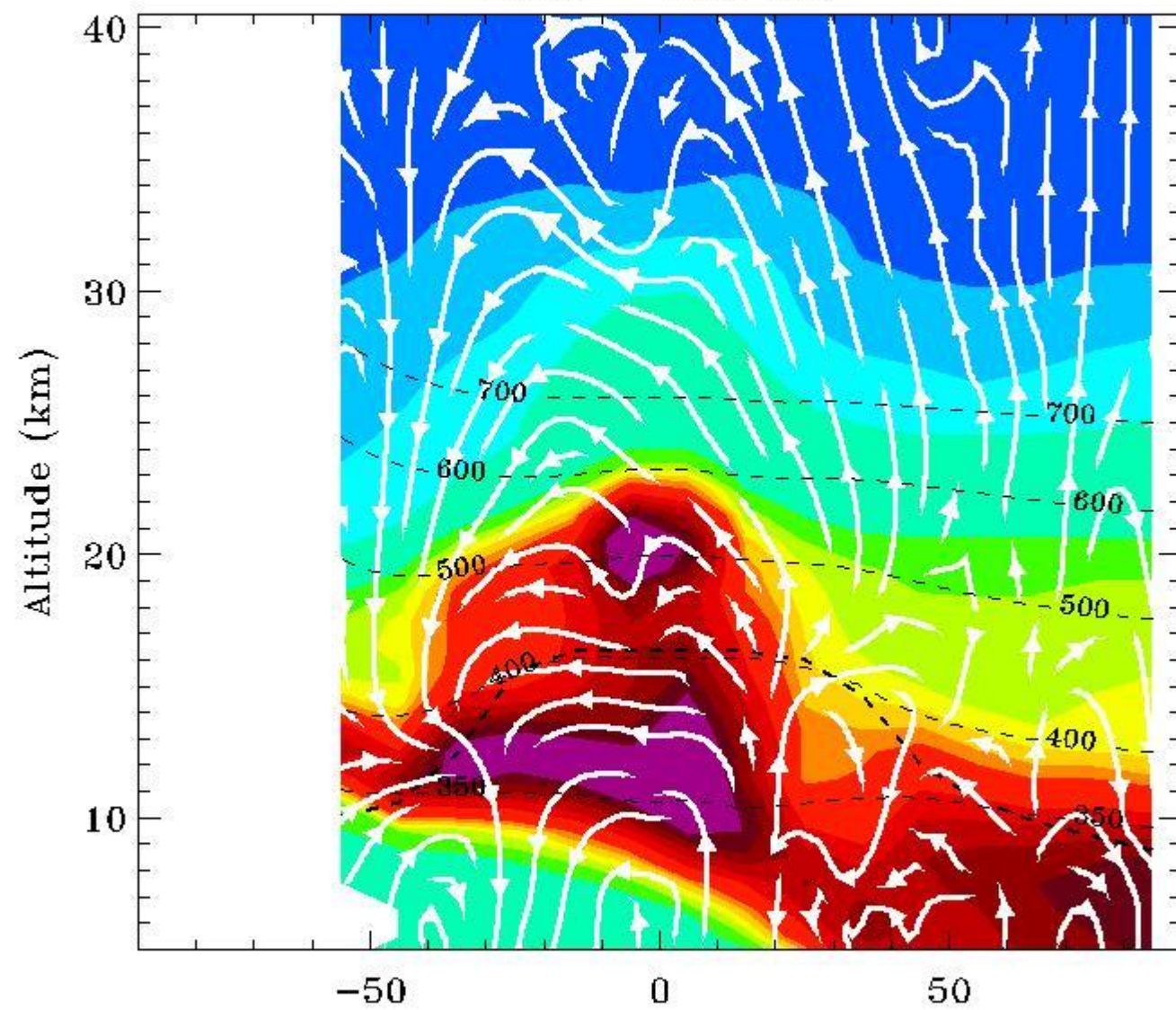




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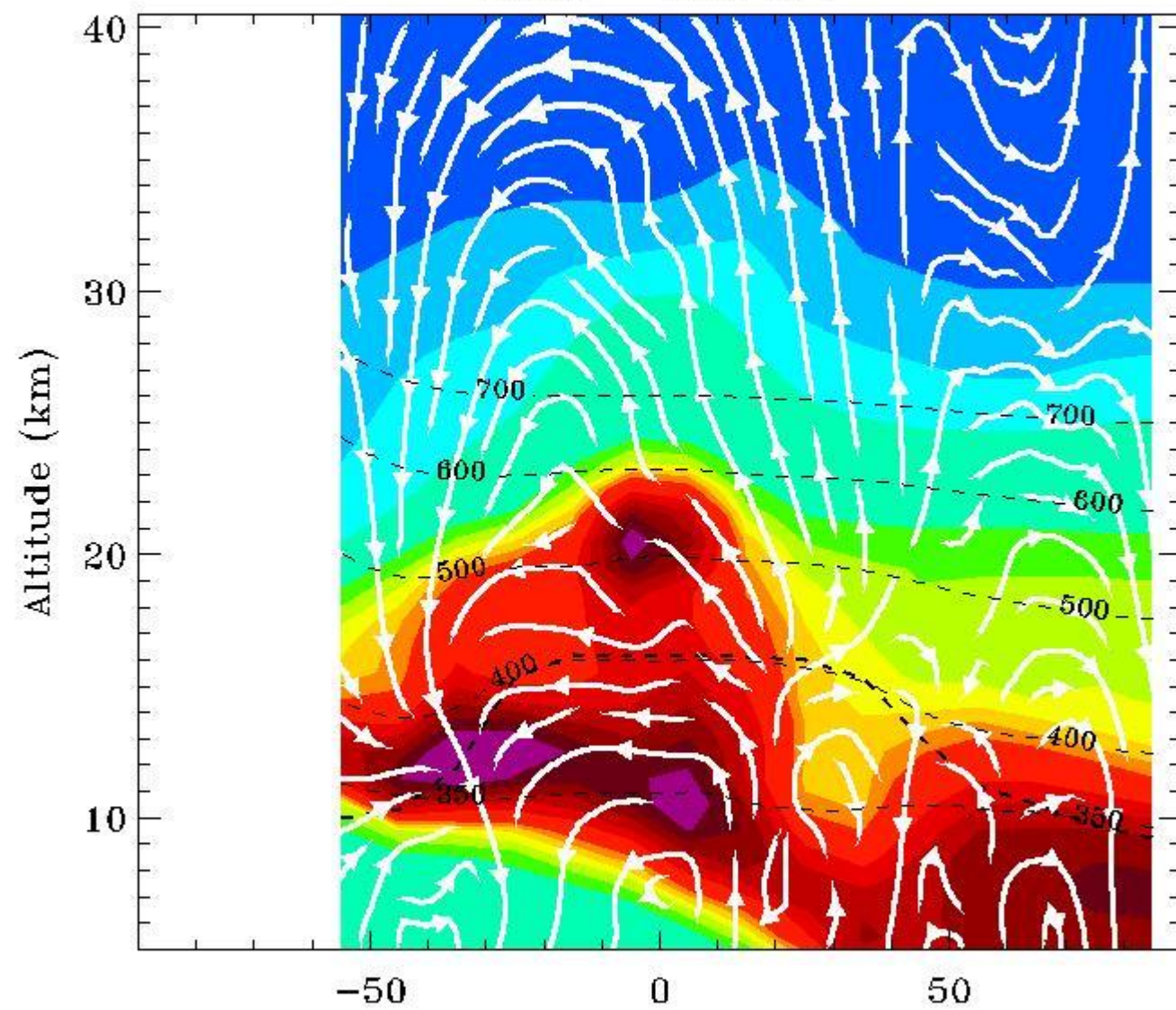


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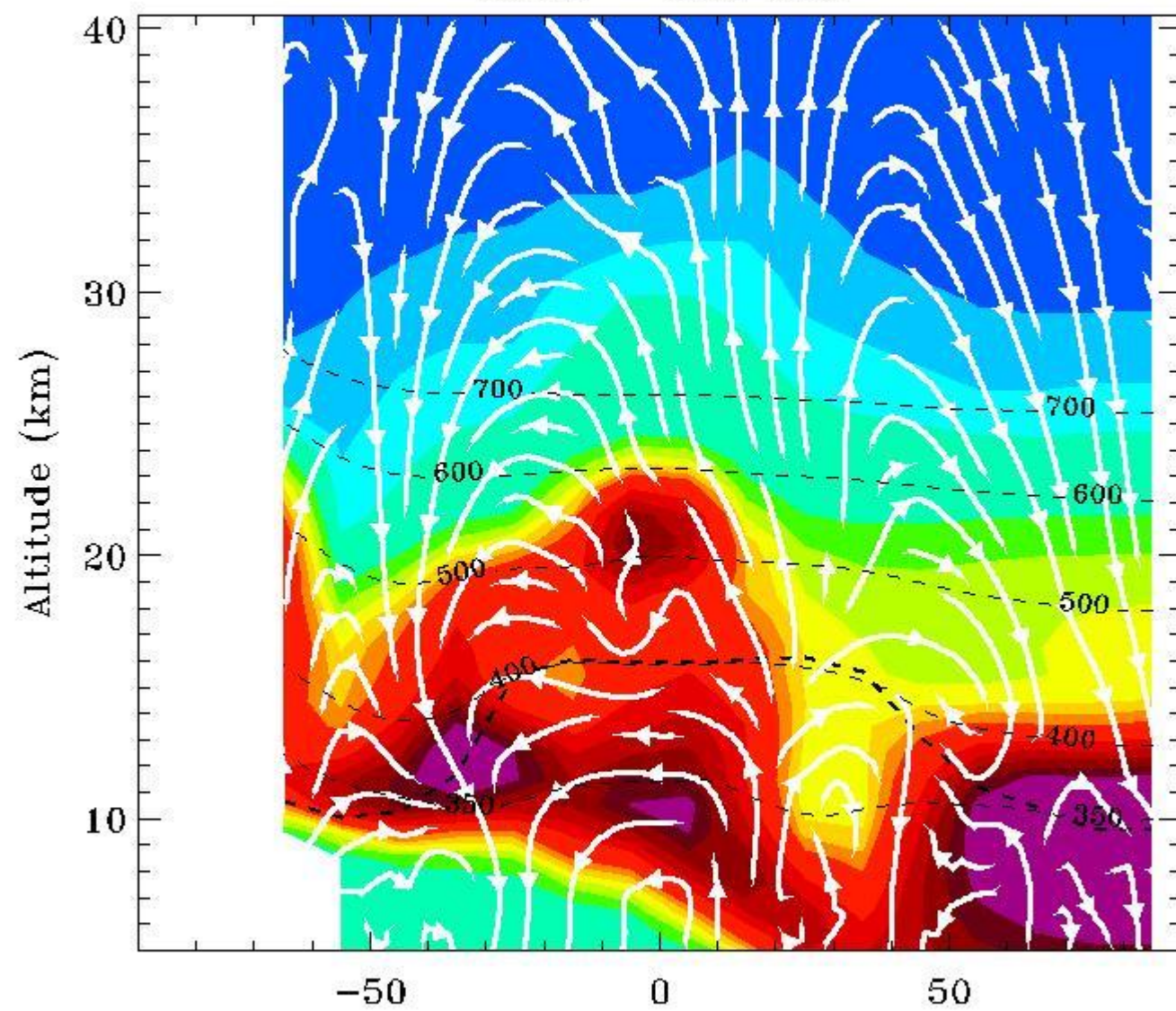




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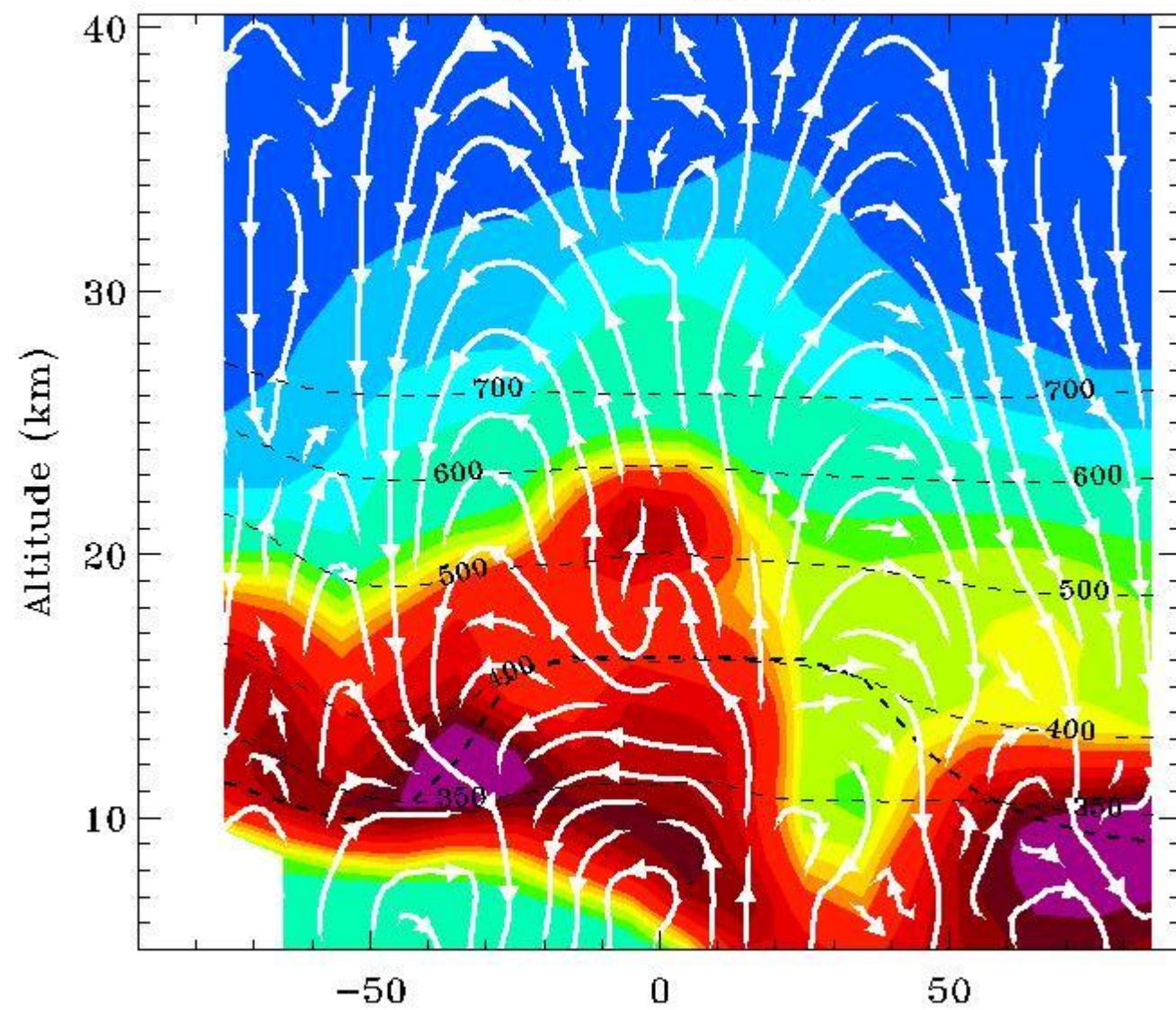


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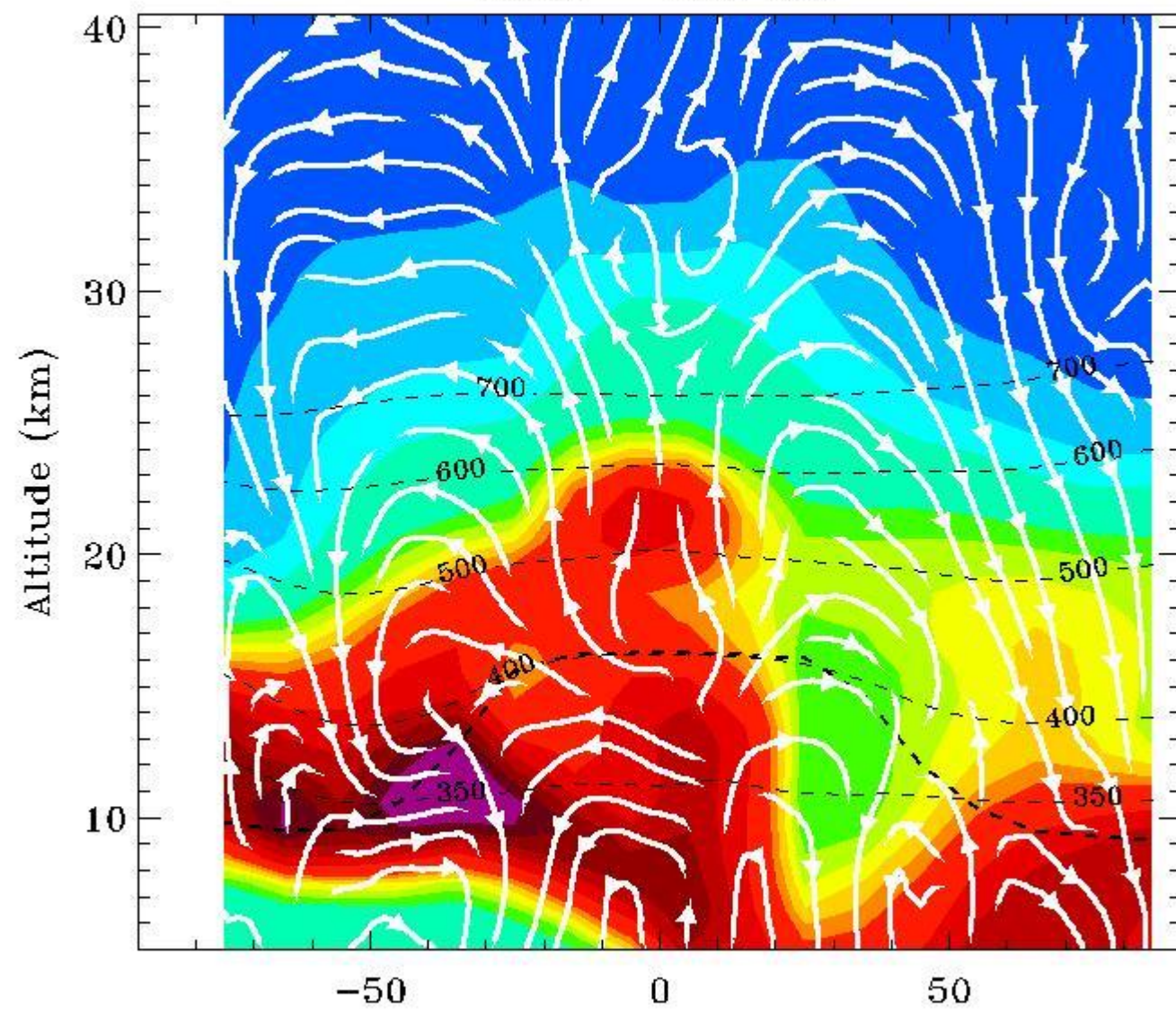




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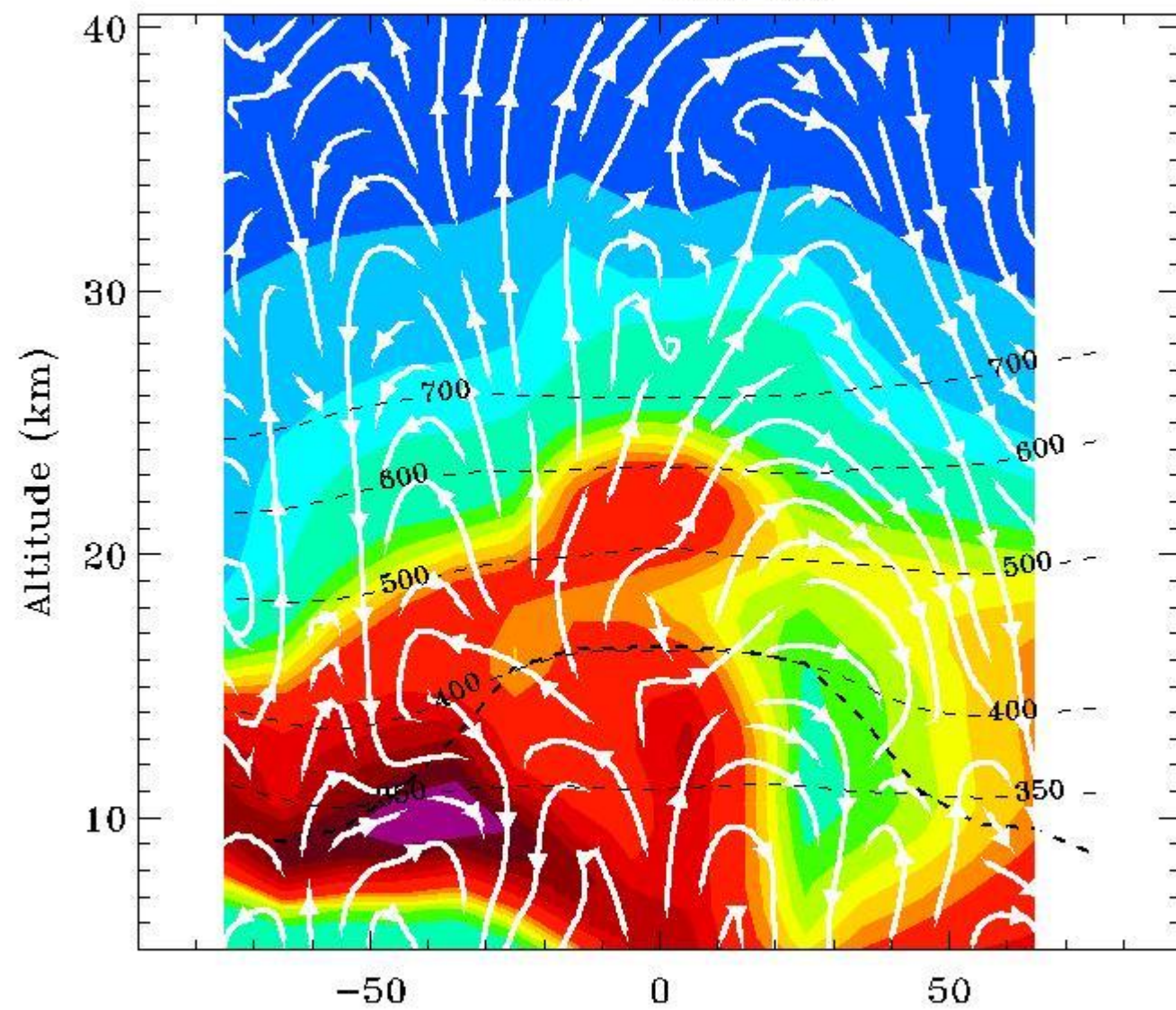


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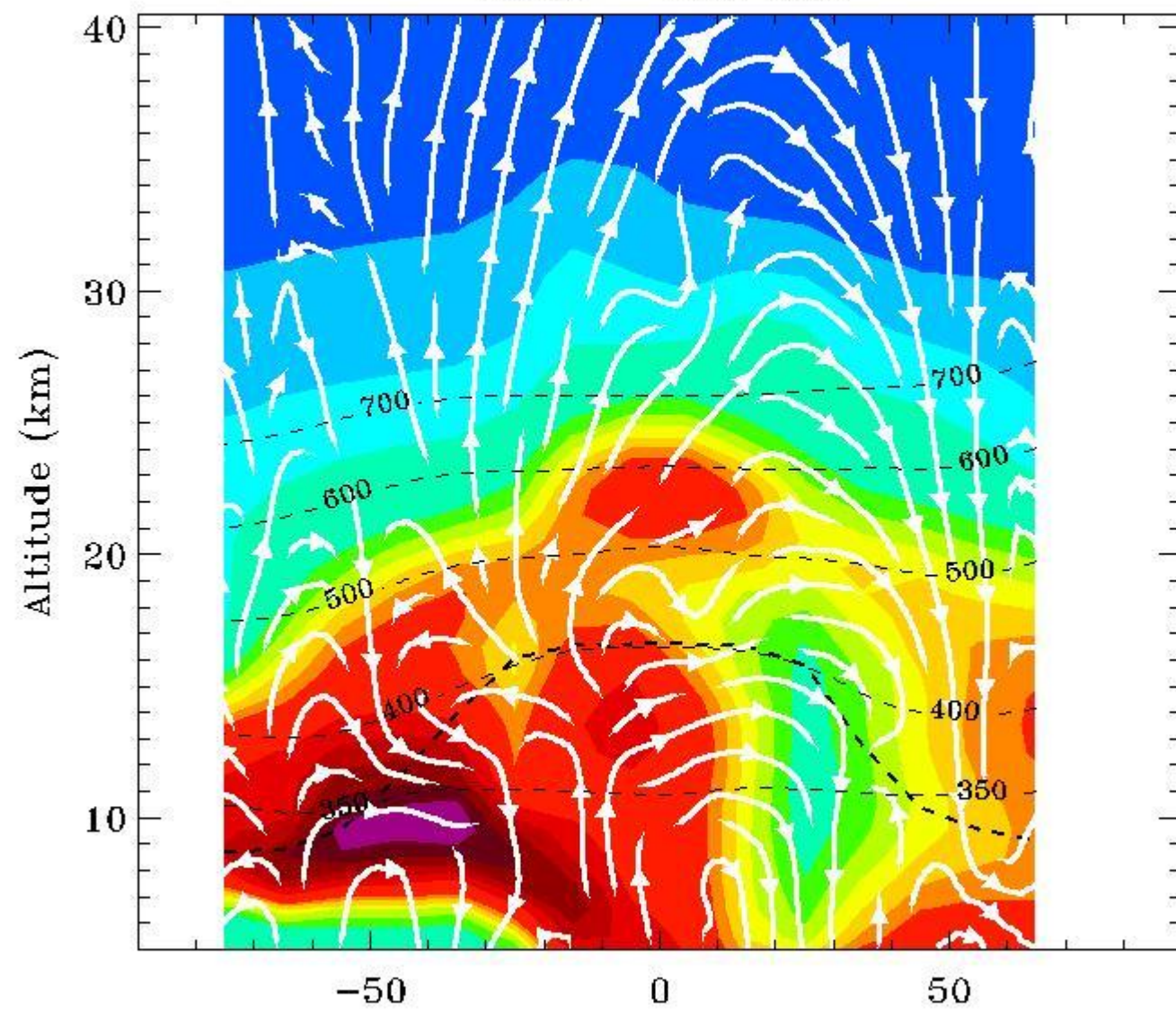




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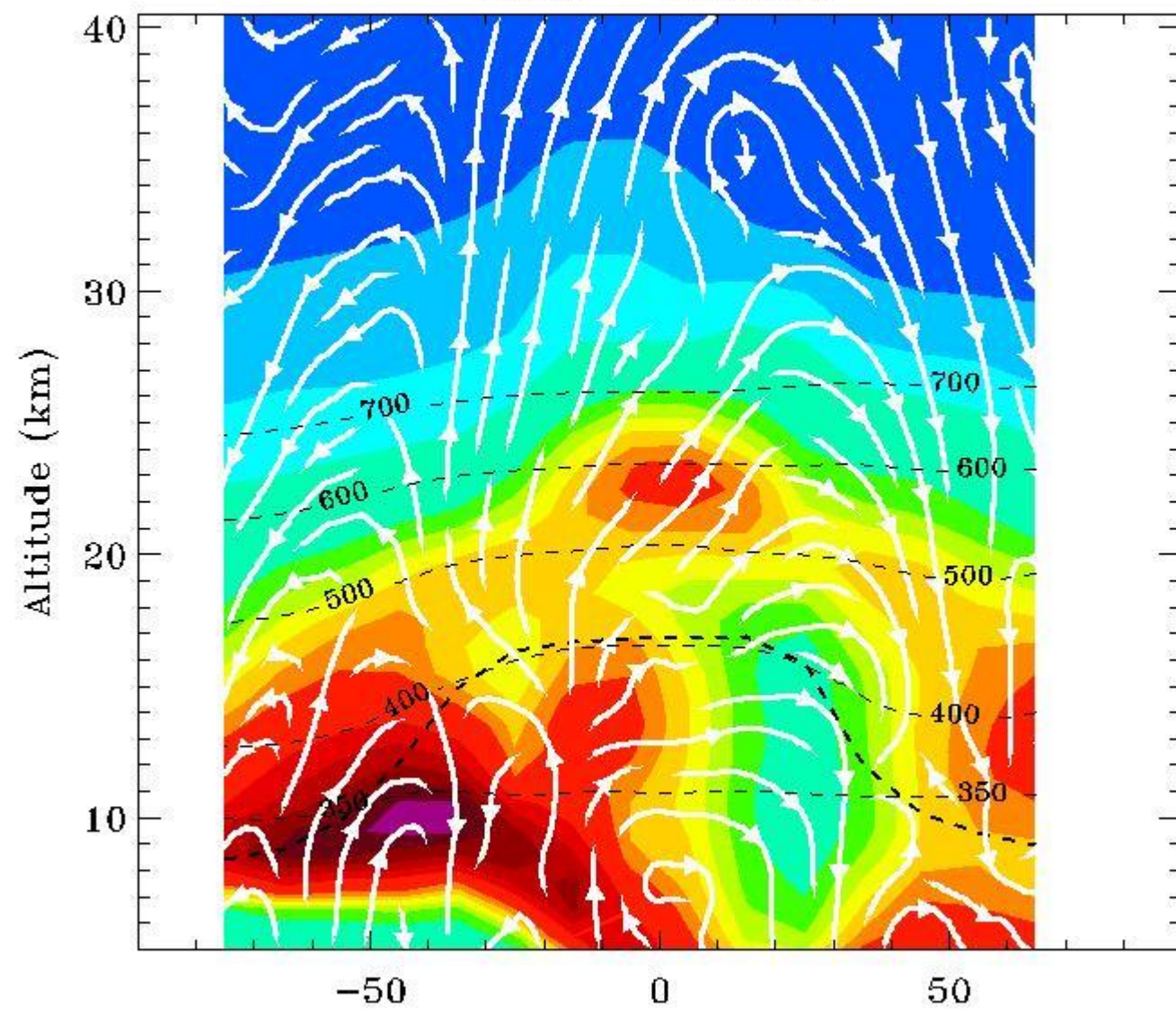


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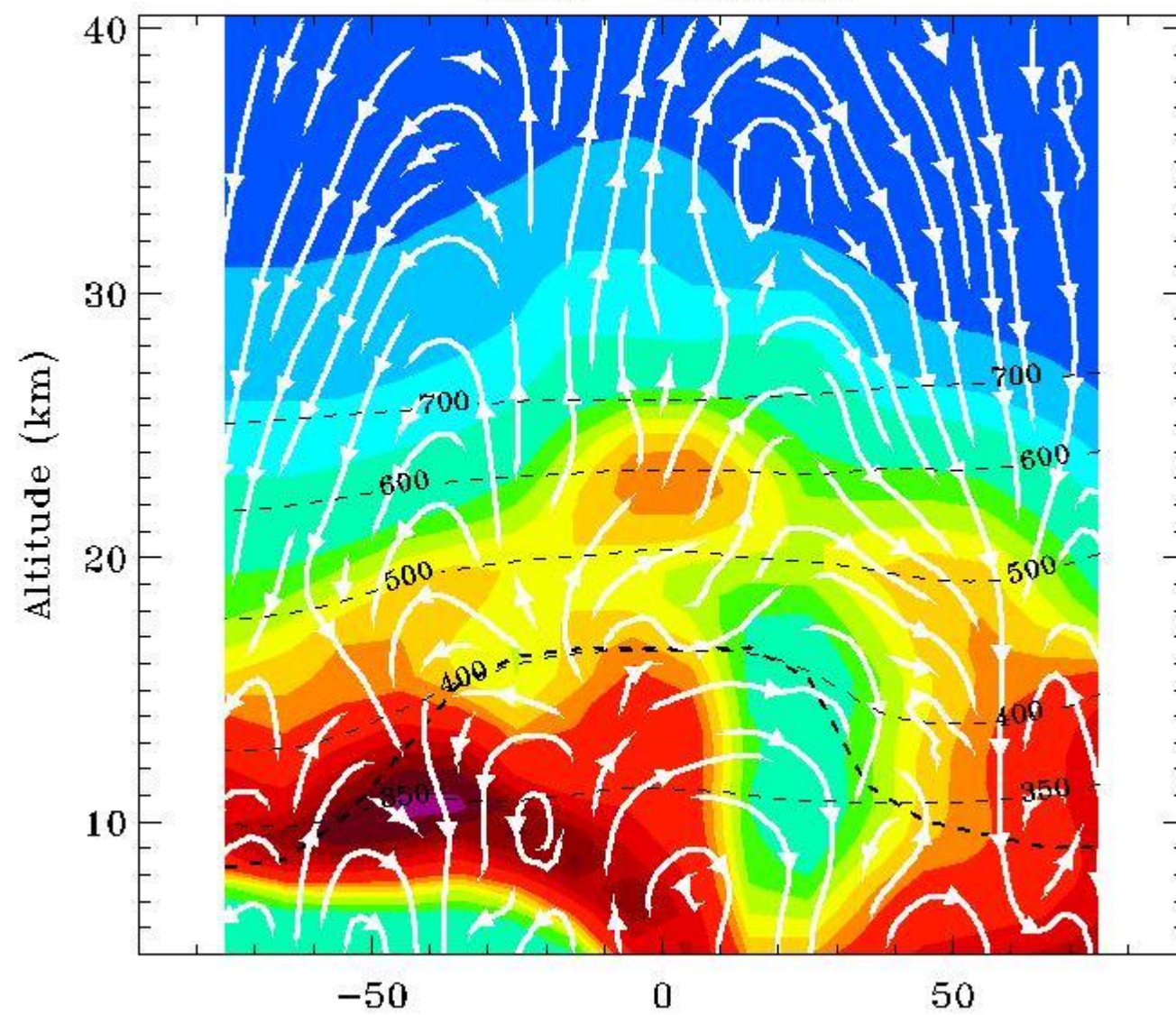




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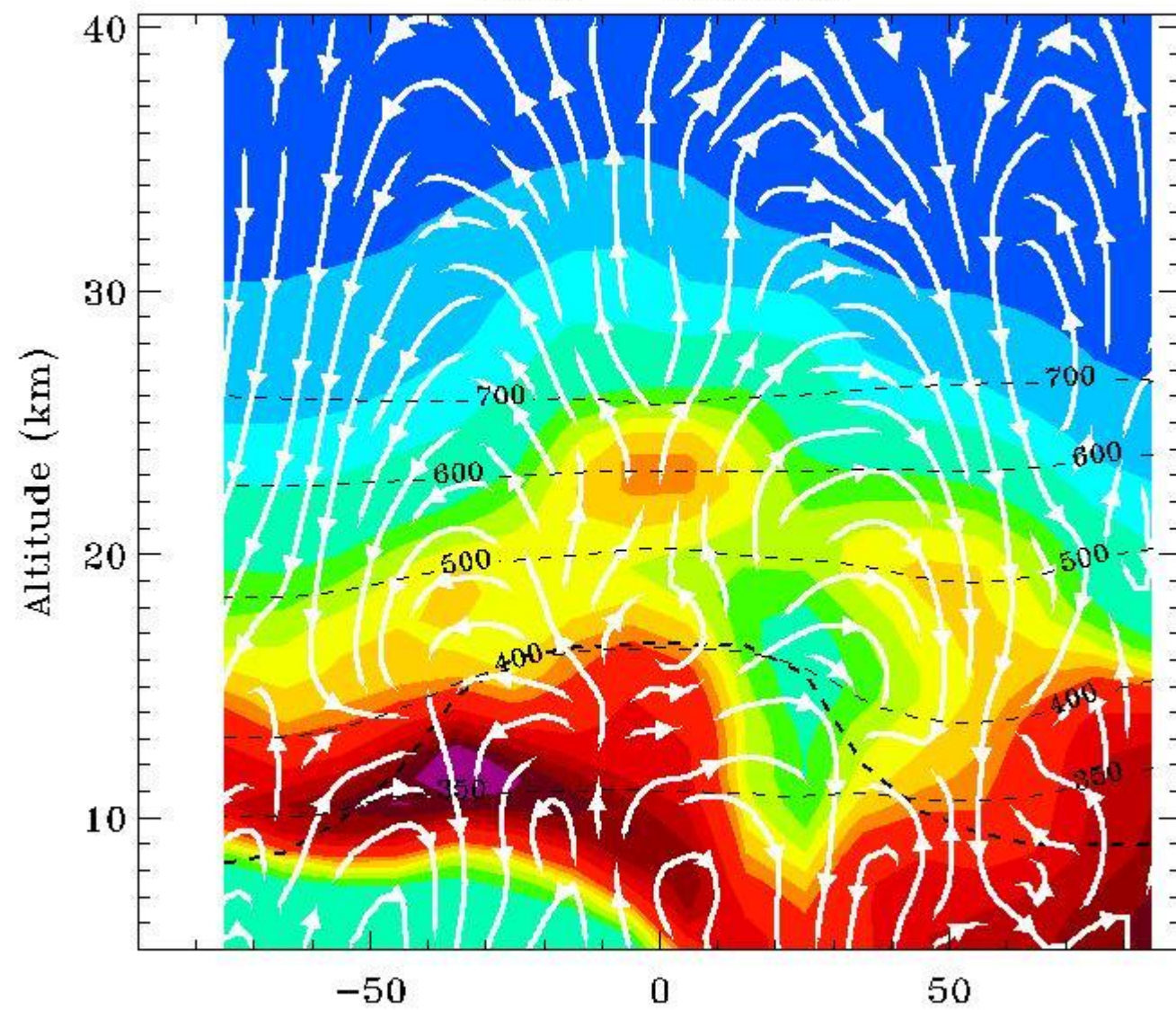


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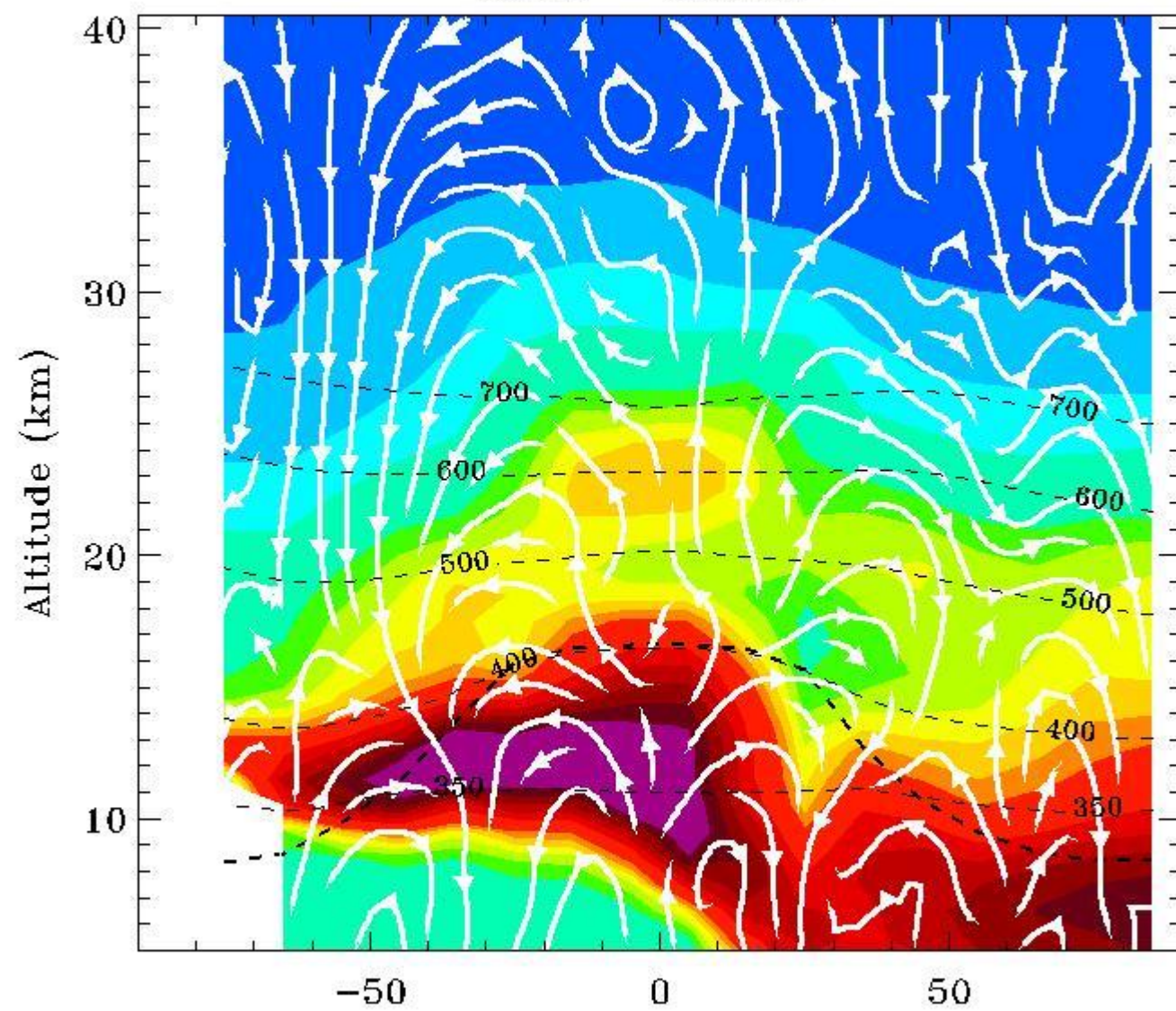




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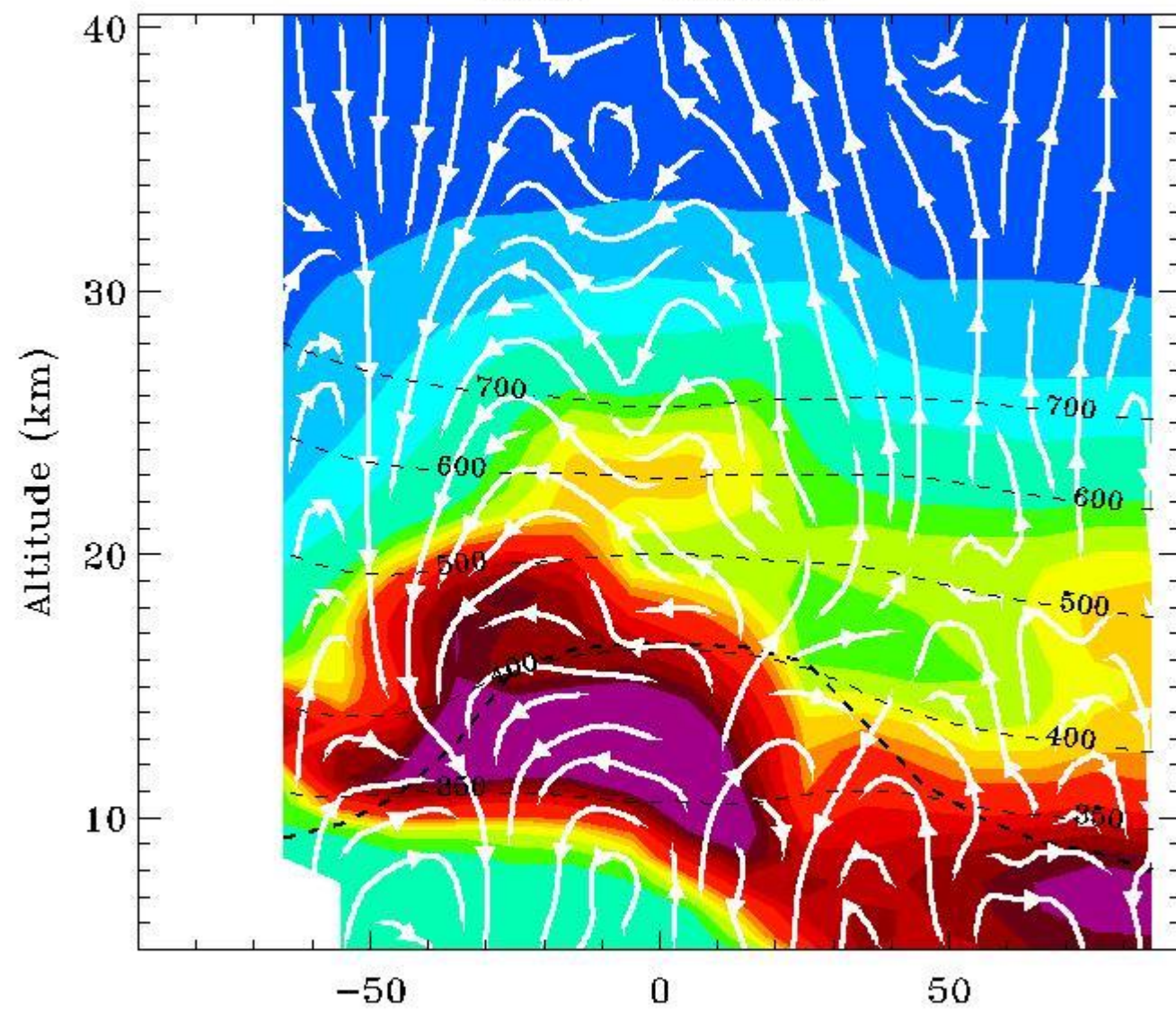


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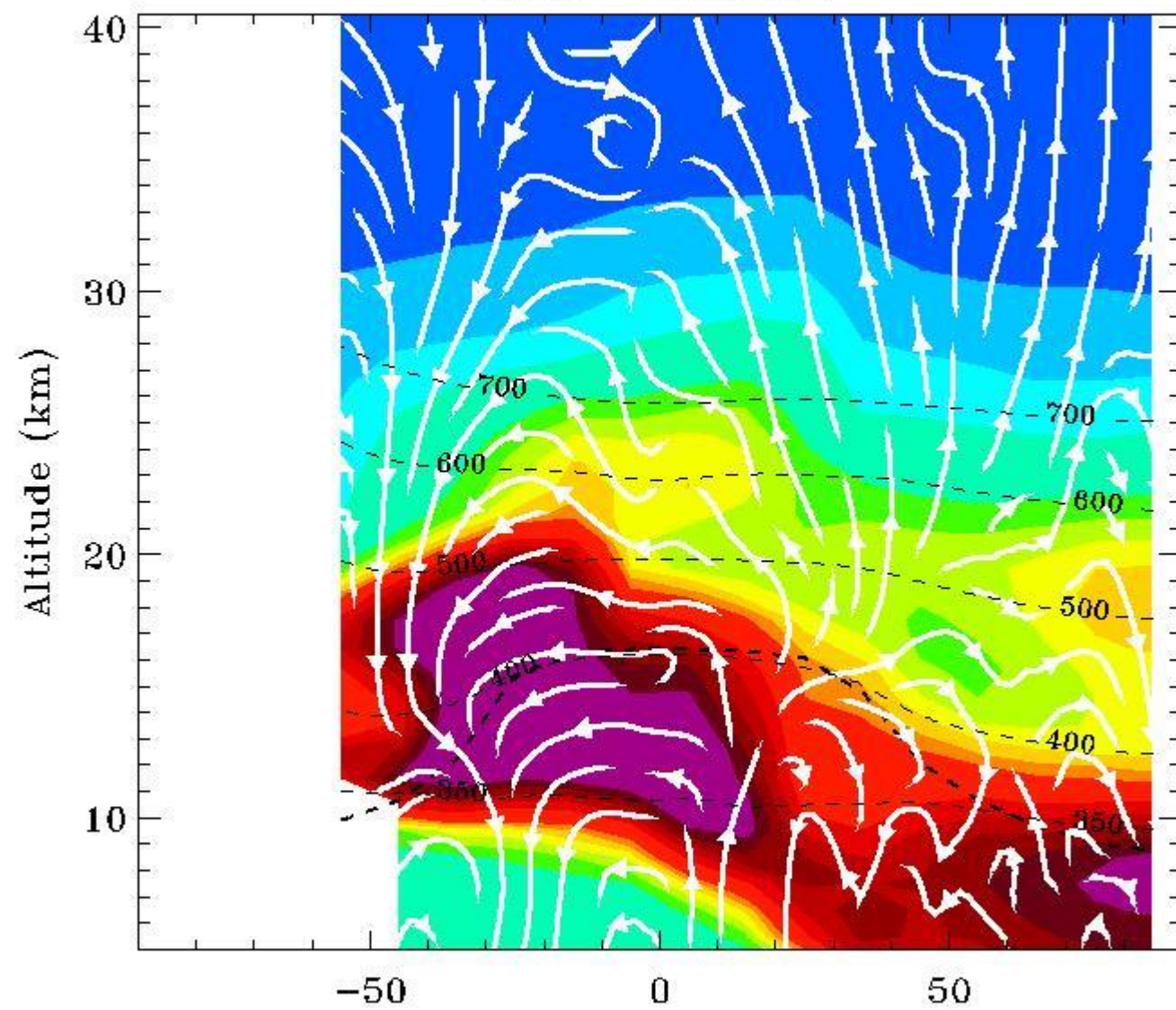




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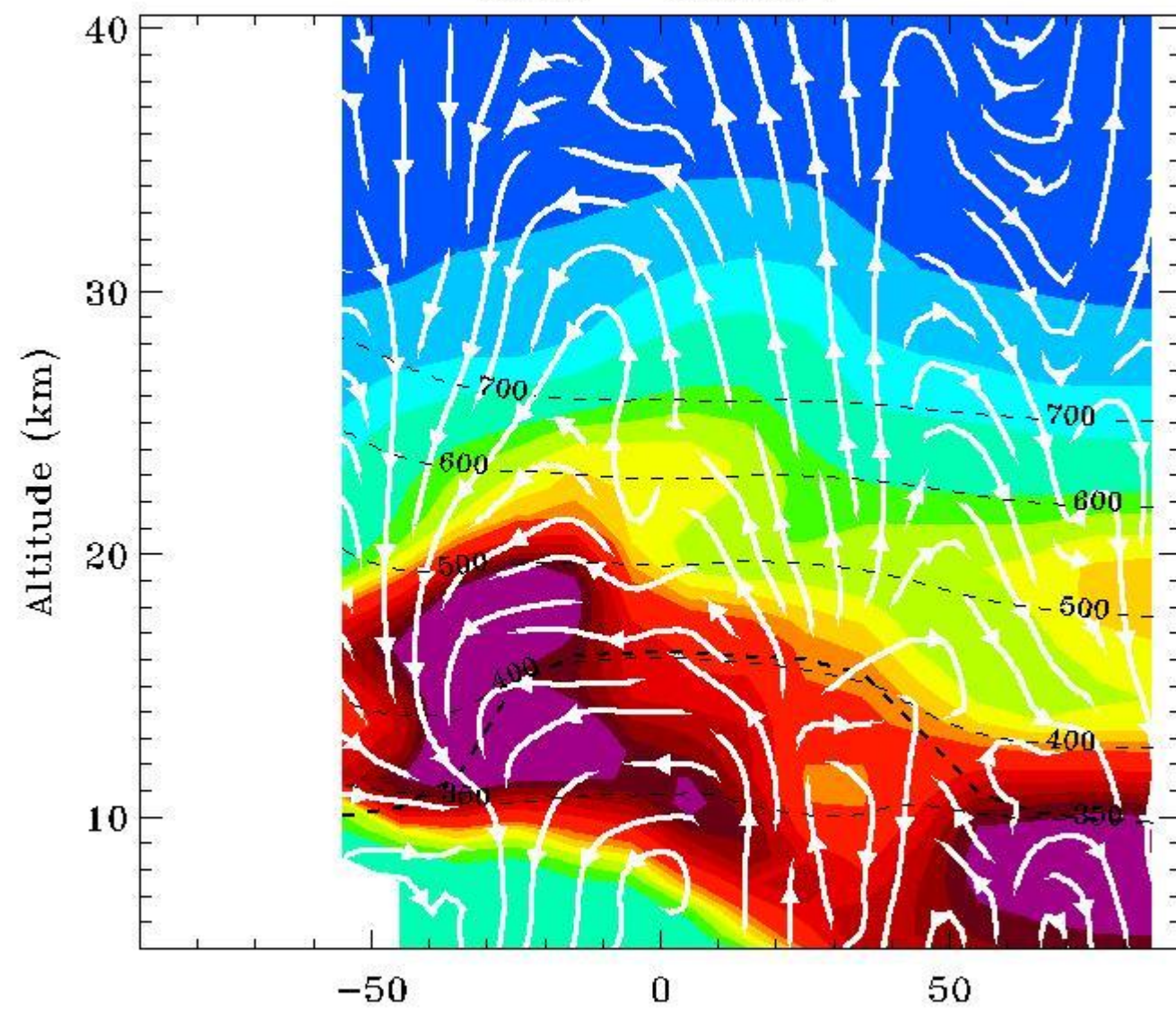


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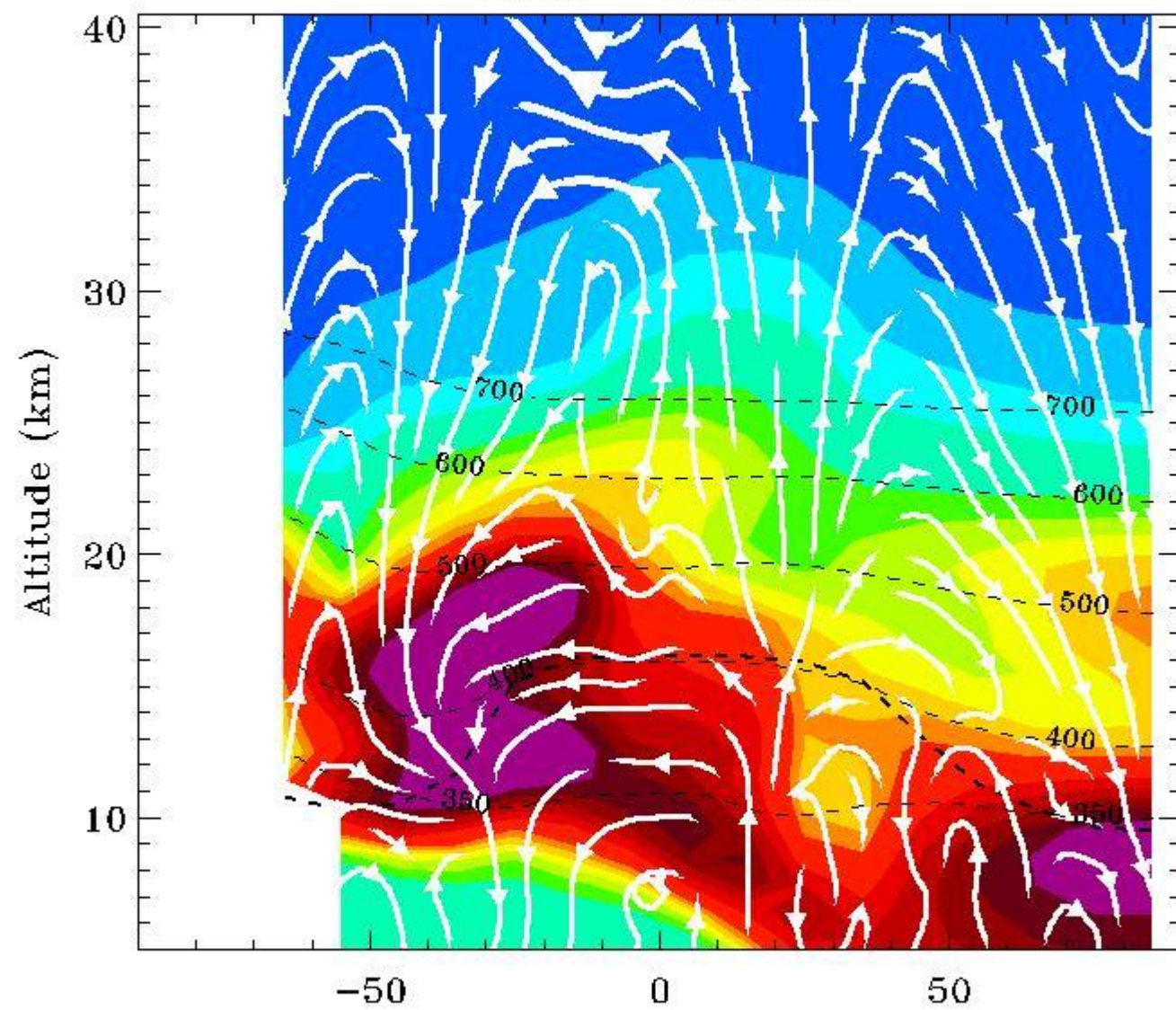




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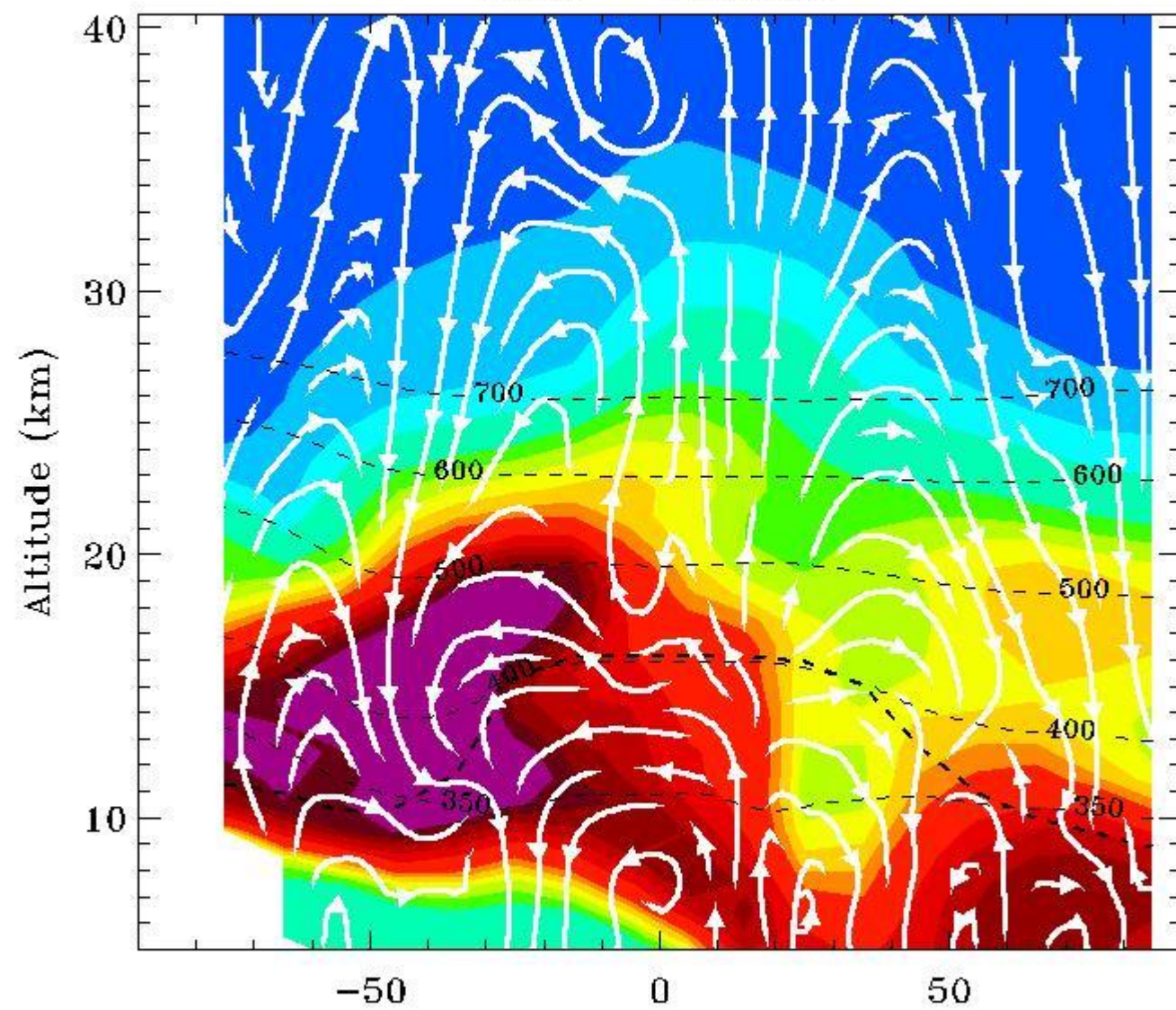


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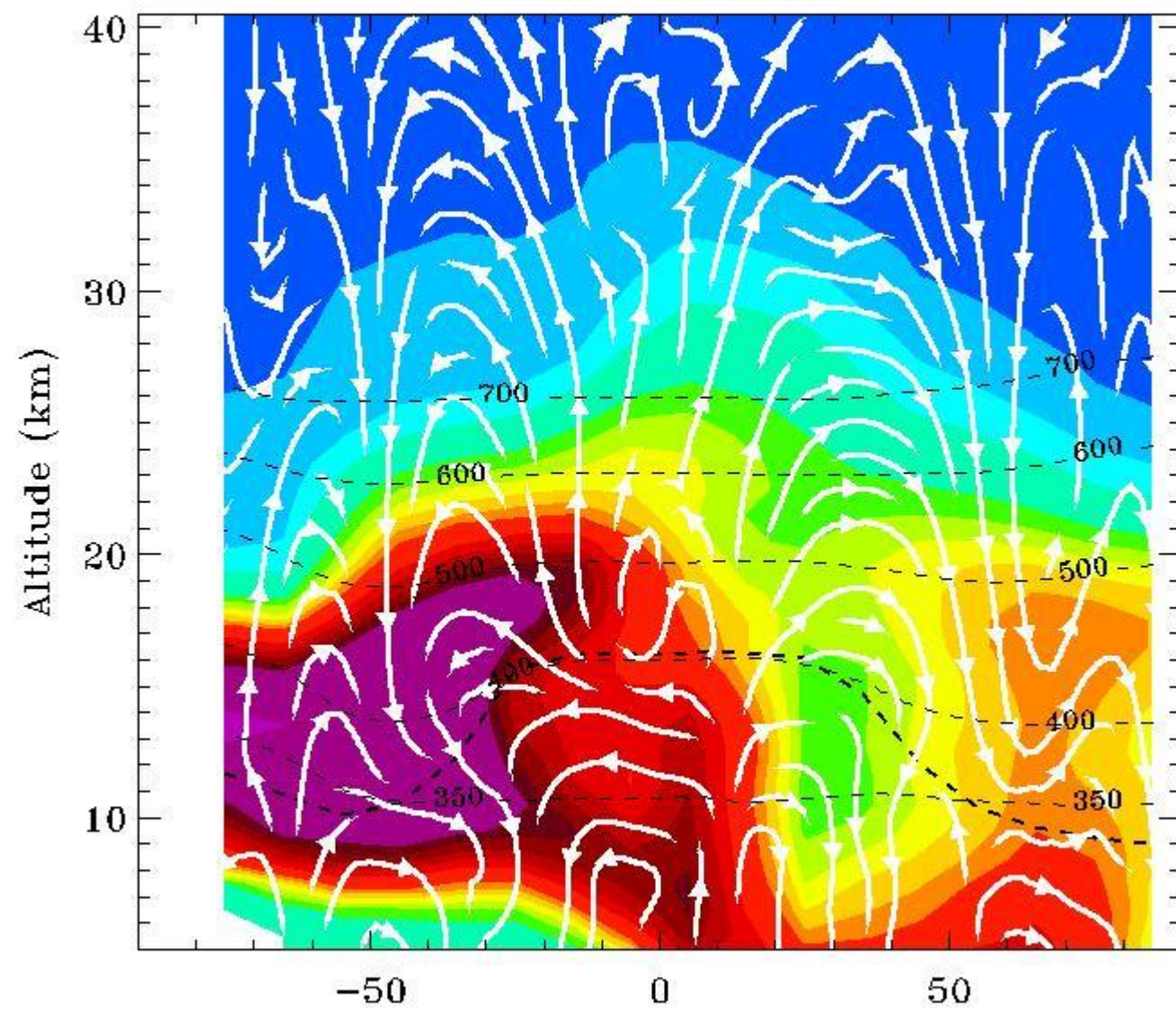




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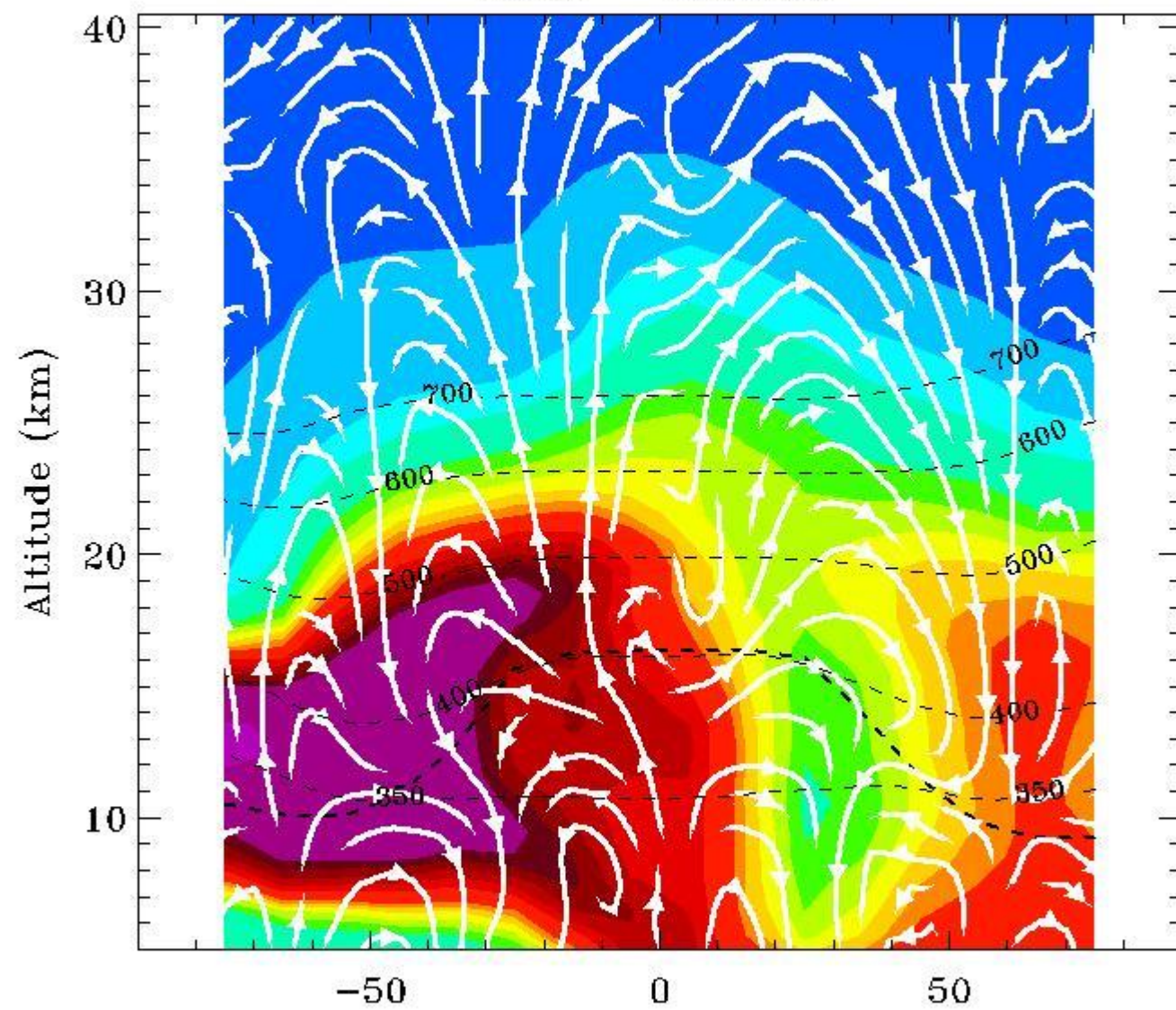


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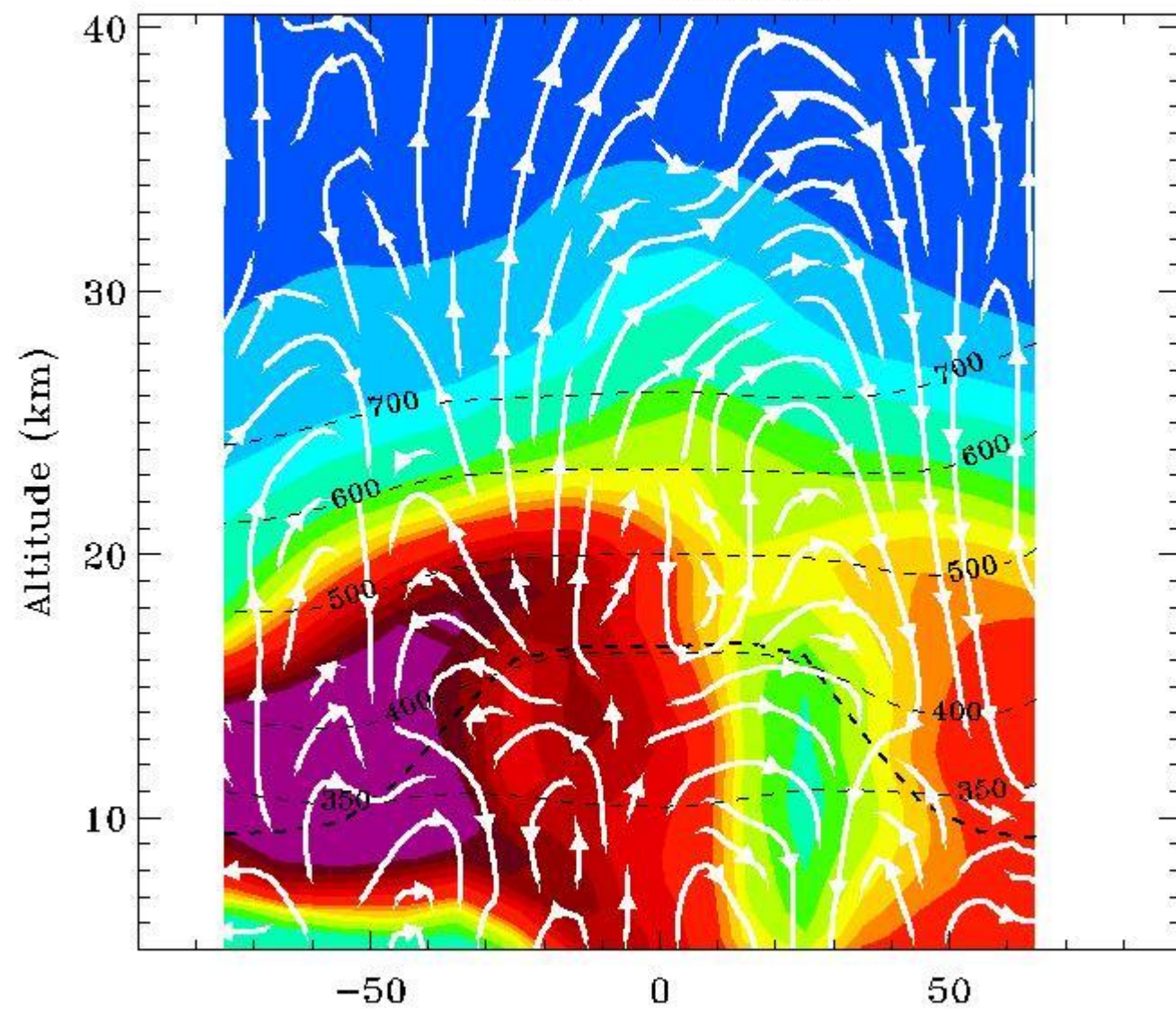




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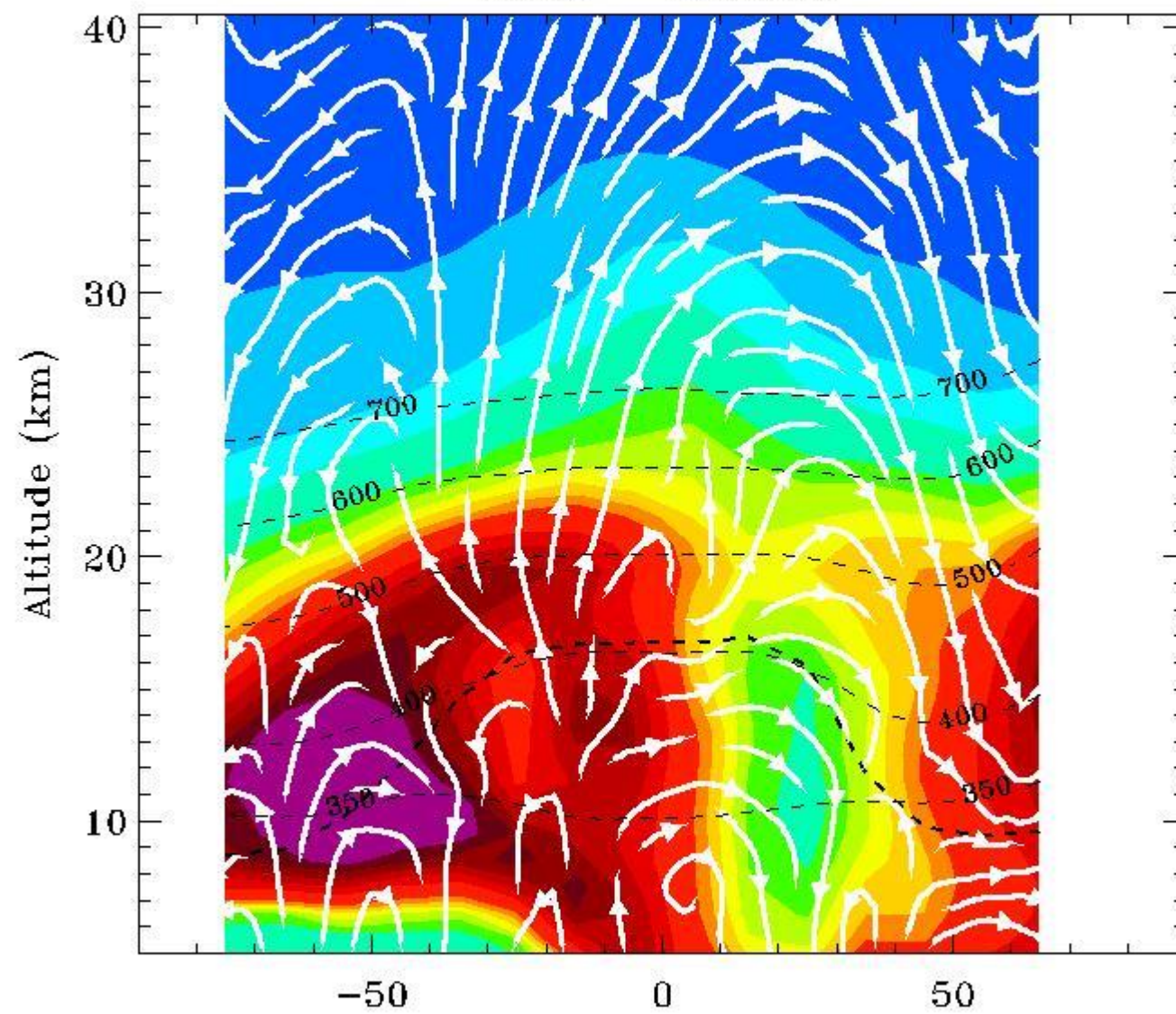


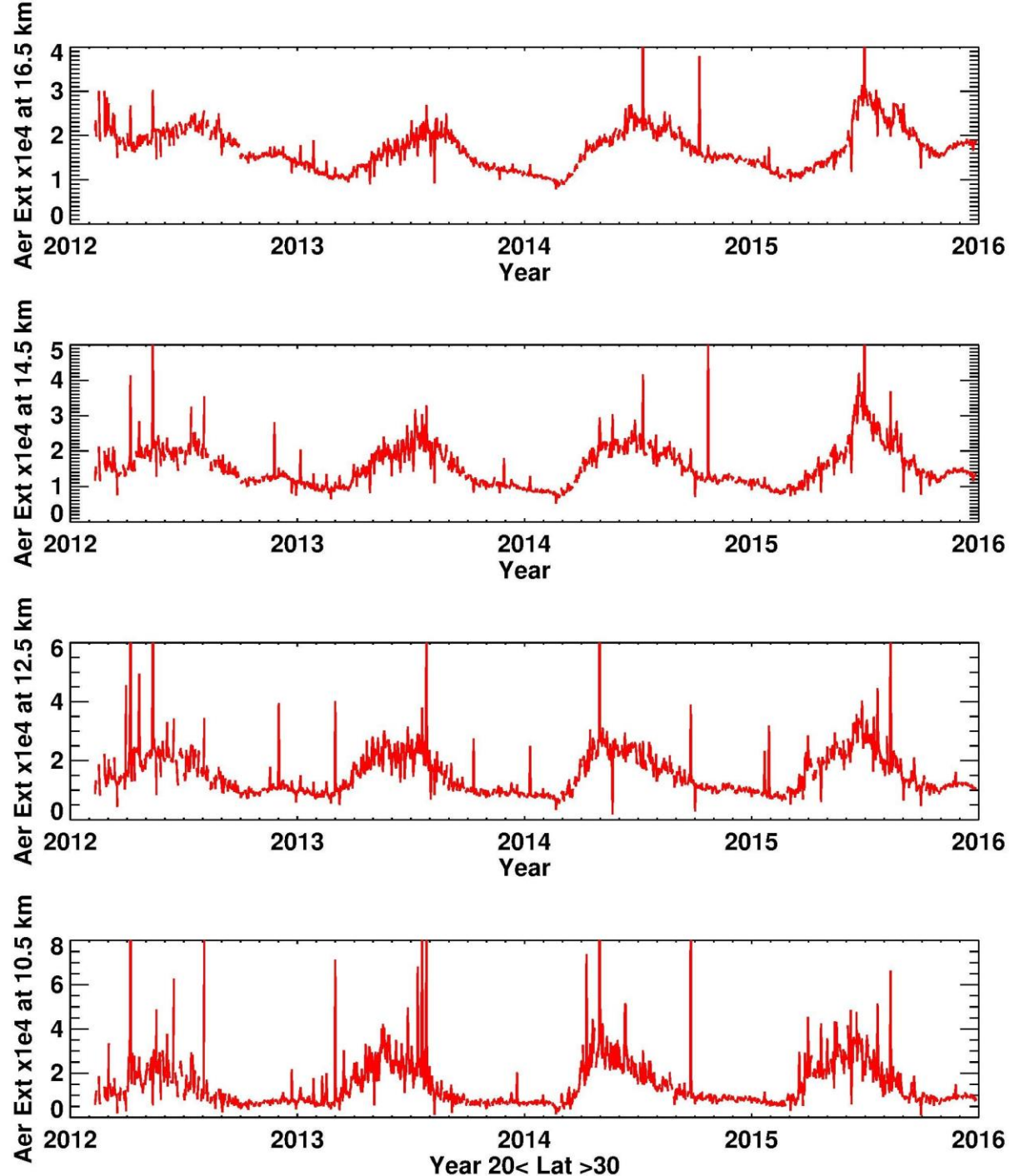
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Date = 201601





- Aerosol zonal mean time series at latitude 20-30, 10.5, 12.5, 14.5, and 16.5 km
  - Screened for clouds
- Aerosol minima during Sept-March in NH
- Caused by emission or dynamics? Or both?



